# THE BREEDING BIRDS OF PENNSYLVANIA.

1913

R. C. HARLOW.

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by

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Thesis for the Degree of Master of Science in Biology

1913

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# THE BREEDING BIRDS OF PENNSYLVANIA

The following paper has as an object the collecting and correlating of all the material available on the nesting birds of Pennsylvania. There is not a single work devoted exclusively to this subject, and the breeding areas of many of the species have never before been traced out. Mr. Stone's admirable work on "The Birds of Eastern Pennsylvania and New Jersey" treats of the breeding birds in general statements, but since it was published nearly twenty years ago much additional data has accumulated. Dr. Warren, in his "Birds of Pennsylvania", has many notes of value, but his work is older than Mr. Stone's and much of his material is misleading. It has been the aim of this work to portray conditions as they exist at the present time in the state of Pennsylvania.

This state contains approximately an area of 28,808,443 acres. No state in the Union presents a greater variety of surface than Pennsylvania. The mountains seldom rise above 2000 feet and spread over one-fourth of the state in parallel ridges running generally northeast and southwest. Beginning with South Mountain below Easton, we find the entire belt spread out to a width of two hundred miles, the greatest breadth the Alleghany range attains between Maine and Alabama. In the southern part of the state, the

mountains become high and rugged; the west is hilly and the southeast and northwest occasionally so, but very frequently level.

The only lake of importance is Lake Erie, forming the northwest boundary for about fifty miles. On the eastern border, the Delaware River flows south and empties into the Delaware Bay, being joined by the Schuylkill below Philadelphia and at Easton by the Lehigh; each tributary is about one hundred miles in length. Farther inland the Susquehanna, the largest river in the state, enters Pennsylvania from New York and, flowing southerly, crosses the entire state, dividing it into two unequal parts. Its principal tributaries are the West Branch and Juniata from the west and the Swatara and Conestoga from the east. The Ohio, which is formed by the union of the Alleghany from the north and the Monongahela from the south, drains the western part of the state, having about fifty miles of its course in Pennsylvania. The Alleghany extends to the north for three hundred miles, while the Monongahela stretches away for two hundred miles.

With such a variety of country and topographical conditions, it is little wonder that the number of birds summering in this state is large. The higher Alleghanies carry south with them many birds that typically breed much farther north, while the mild climate of the southern counties brings north birds typical of the sunny south.

North America has been divided into three broad faunal regions, the Boreal, the Austral, and the Tropical. The first or Boreal region includes three zones, the Arctic, the Hudsonian, and the Canadian. This Canadian zone is found in Pennsylvania along the higher Alleghanies but is steadily becoming less a feature as the coniferous forests are cut. At present it is most pronounced on the Pocono plateau and in portions of Sullivan, Wyoming, Warren, and Elk Counties. Among the birds which are typical of the Canadian zone are the White-throated Sparrow, Pine Siskin, Junco, Canadian and Black-throated Blue Warblers, Winter Wren, Golden-crowned Kinglet, and Olive-backed Thrush.

The only zones of the Austral region occuring within the state of Pennsylvania are the Alleghanian and the Carolinian. The Alleghanian zone embraces the entire breadth of the mountains and the plateaus, except the high ridges where the coniferous forest is still abundant. Typical birds of this region are the Sora Rail, Bobolink, Savanna Sparrow, Chestnut-sided Warbler, and Chickadee.

The Carolinian zone occupies the southeastern and western corners of the state and pushes up the river valleys into the first ridges of the mountains. In the state of Pennsylvania, this zone is most pronounced in the extreme southwestern counties which are featured with such birds as the Kentucky Warbler, Cardinal, Acadian Flycatcher, Carolina Wren, Blue Gray Gnatcatcher, and Red-bellied Woodpecker.

The three great zones passing thru Pennsylvania may be divided into several regions, differing radically in the dominating species. In speaking of these regions, I have followed the same plan set forth by Witmer Stone and shall follow in a general way his description of their general characteristics.

The Delaware Valley - The country lying along the Delaware River from Bucks to Chester Counties and drained by the Schuylkill, Delaware, and Brandywine Rivers has a bird fauna that is quite distinctive. Close to the river from Philadelphia County southward are stretches of swampy meadows interspersed with patches of woodland and large solitary trees. Here the Swamp Sparrow is perhaps more abundant than anywhere else within its range, while such species as the Barn Owl, Yellow Warbler, Long Billed Marsh-wren, and Fish Crow commonly breed. Farther back in the drier farming land and the creek valleys often fringed with laurel, we find the Turkey Vulture, Acadian Flycatcher, Cardinal, Blue-winged and Worm-eating Warblers, Yellow-breasted Chat, Carolian Wren, and Tufted Titmouse.

The Susquehanna Valley - This valley stretches up thru York and Lancaster Counties and carries many southern birds northward which are rare in the surrounding country. The birds are those typical to the Carolinian fauna but seem even more abundant than in the Delaware Valley, the Louisiana Water Thrush breeding here more commonly than in the Delaware

Valley, while the Turkey Vulture and Carolina Wren abound.

The Southwestern Counties - In Green and Washington Counties as far north as Beaver, there is a far more pronounced Carolinian fauna than elsewhere within the state. Here all the typical birds of the Delaware Valley occur in far greater abundance, while in addition the Red-bellied WoodPecker and Blue Gray Gnatcatcher breed commonly and in some sections the Cerulean Warbler is found. A peculiar feature of this section is the abundance in Greene County of the Golden-winged Warbler, but stranger still is the presence of the Chickadee, a common breeding bird in the Alleghanian fauna, while the Carolina Chickadee is absent. Here the Louisiana Water Thrush, Worm-eating and Kentucky Warblers occur in their greatest abundance.

The Interior Uplands - Generally speaking the typical Carolinian birds become far less common in the valleys beyond the first range of hills and in the higher ground forming the water sheds between the various ridges. Here we find such birds as the Scarlet Tanager, Bobolink, Rose-breasted Grosbeak, and Black and White Warbler occuring in greater numbers and the southern birds thinning out.

The Appalachian District - Between the first hills and the main crest of the Alleghanies is a series of sharp ridges broken by the various river valleys. In this region as well as along the lower slopes of the Alleghanies, the Carolinian species grow rare and are mainly confined to the

river valleys, while such distinctly Alleghanian forms as the Chestnut-sided Warbler, Purple Finch, Savanna Sparrow, and Black-capped Chickadee occur.

The Alleghanian and Pocono Mountains - On the main ridge of the Alleghanies from the northern counties south to Somerset, on the Pocono Mountain plateau and on the plateau region of north-central Pennsylvania, there once existed, and still apparently exists, a bird fauna decidedly Canadian in its affinities. Now, however, the destruction of the coniferous forest which formerly covered these mountains has in most places driven away the most typical northern birds which bred in the damp dark woods. Dr. Dwight, in an interesting article in the Auk (1892, pp 129), writes as follows concerning the region about North Mountain, Sullivan County, as it existed at that time:-

"The forest is truly primeval; the hemlock, the yellow birch, and the maple are the characteristic trees and attain great size. The hemlocks are scattered in considerable numbers thru the forest and tower above it, their huge trunks often four or five feet in diameter, marking them out giants among their lesser brethern. The underbrush is often dense, and everywhere great logs, covered with moss, lie mouldering. Here and there you hear clear cold brooks that seem to imitate the song of the Winter Wren that is almost constantly heard among them. The drawling song of of the Black-throated Blue Warbler and the sprightly one of

the Canadian Warbler is heard on every hand. High up in the hemlocks the drowsy sounds of the Black-throated Green Warbler are heard, and the lively chatter of the Blackburnian Warbler catches the ear."

At persent a great change is going on in many localities. With the cutting of the timber, the Pileated Woodpecker must go, while the Red-headed Woodpecker takes his place in the slashings. Steadily the Carolinian species are encroaching on the country which was formerly typically Canadian in fauna. At the present time the Yellow-breasted Chat has been found in several of the northern counties, and the time may not be far distant when this species as well as the Tufted Titmouse will be found locally in sections where the Winter Wren and Red-breasted Nuthatch once bred. At present there is a peculiar mixture of faunas in many of the counties. In Huntingdon and Center Counties for instance, the author has found the Tufted Titmouse summering in the same ravine with the Canadian Warbler, the Acadian Flycatcher and Magnolia Warbler breeding close together, while in the same swamp the Black-throateed Green and Worm-eating Warbler, Louisiana Water Thrush, and Hooded and Black-throated Blue Warbler were nesting. Concerning the Louisiana Water Thrush there seems to have been a good deal of confusion. Formerly it was supposed to be limited to the Carolinian fauna, and the Northern Water Thrush is recorded in several books as nesting in Bear Meadows, Center County. The author's ob-

servations covering a period of four years failed to show the Northern Water Thrush breeding this locality, tho the Louisiana was very common. In fact I have found it nesting regularly from Center County north thru Pike, Wayne, and Monroe Counties, where it nests in the same swamps with its northern cousin.

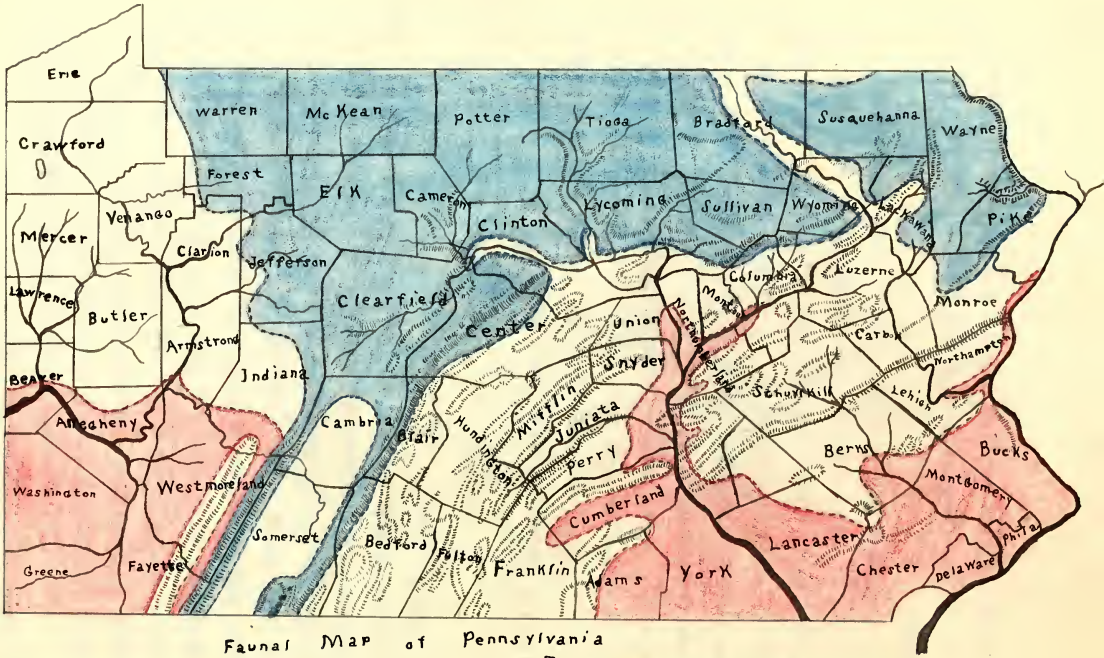
Other typical northern birds breeding in the hemlock forests of the mountains are the Red Crossbill, Pine Siskin, Junco, Brown Creeper, Red-breasted Nuthatch, Golden-crowned Kinglet, and Olive-backed and Hermit Thrushes. About Pocono Lake in Monroe County, a number of these species breed along with the Nashville Warbler and the White-throated Sparrow. Perhaps the most typically Canadian fauna at the present time is found in Warren County, where Mr. Simpson finds shch species as the Goshawk, Acadian Owl, Yellow-bellied Sapsucker, Pine Siskin, Mourning, Canadian, Black-throated Blue, Blackburnian, and Magnolia Warblers, Northern Water Thrush, Solitary Vireo, Brown Creeper, Olive-backed Thrush, and Hermit Thrush nesting regularly.

## Remarks

Concerning the material presented in the present thesis, the author has tried to gather practically all the reliable breeding records for the various species in their Pennsylvania range. A large amount of the material has never before been presented to the public. Many quotations

have been made from Dr. Warren's "Birds of Pennsylvania" and Mr. Witmer Stone's later and more reliable "Birds of Eastern Pennsylvania and New Jersey". In the main, however, by far the larger amount of data is that gathered by the author and his correspondents. Many of the records are taken from the note books of the late Harry K. Jamison now in the author's possession and never before published. For much valuable aid in the way of notes, I desire especially to thank the following of my friends, Mr. Thomas H. Jackson of Chester County, Mr. R. B. Simpson of Warren, Mr. Samuel S. Dickey of Waynesburg, Mr. J. Warren Jacobs of Waynesburg, Mr. E. W. Campbell of Pittston, Mr. A. Benners of Ambler, Mr. T. H. Gillen of Ambler, Mr. R. F. Miller of Philadelphia, Mr. Witmer Stone of Philadelphia, Mr. David Harrower of Swarthmore, and many others. Last but not least, the author desires to thank Professor M. W. Eddy, head of the Department of Zoology of the Pennsylvania State College for the assistance and encouragement he has always so willingly tendered. Concerning my own notes, I will say that they cover a period of ten years and were gathered on field trips made to practically every county of the state from Chester to Greene on the south and from Pike to Erie on the north. Of the species known to nest in the state, it is with pardonable pride that I mention having personally found a larger number actually nesting than any other ornithologist in the state.

A faunal map is included in the thesis for the purpose of making plain the actual range of many birds peculiar to certain faunal areas.




Faunal Map of Pennsylvania

Blue---- Canadian Life Zone

White----- Transition Life Zone

Red----- Carolinian Life Zone

7. Gavia immer (Brunn.). Loon.

This wild inhabitant of the northern solitudes is one of the rarest of the many birds which are known to breed in the state. Inquiries from many of the foremost ornithologists of the state have failed to throw any additional light upon the status of the Loon as a breeding bird, and it now seems as tho the one authentic instance of its nest being found rests upon the record of the author in the Auk. It is possible, however, that several pairs may still nest on some of the wild, mountain lakes in the interior of Pike County, and search should be made for them in that locality.

144. Aix sponsa (Linn.). Wood Duck.

This, the most beautiful of all our waterbirds, is now almost extinct as a summer resident. Twenty-five years ago it was fairly common from April 1 to October, breeding on retired lakes and placid streams. Now it is rare even as a migrant, while I have been unable to find data of an authentic Pennsylvania nest during the last twenty years, tho a few scattered pairs still undoubtedly nest here. Unless stringently protected at all times, the Wood Duck may soon take a place along with the Passenger Pigeon.

It formerly bred locally and in solitary pairs on the Pennypack Creek quite close to Philadelphia, where

birds were noted in the breeding season as late as 1896 (S. Brown), and it has been seen several times in the summer during the last ten years by Richard F. Miller about Philadelphia. Near Pittston it bred regularly in a swamp along the Susquehanna River, and a pair is still reported as breeding on an island below Mehoopany. Various reports have reached me of their breeding within the last few years, but the fact that no nests have actually been found will testify to their rarity.

190. Botaurus lentiginosus (Montag.). American Bittern.

The American Bittern occurs frequently in Pennsylvania during the spring and fall migrations, arriving about April 25 and leaving during the last week of October. It should be called rare as a nester, tho it breeds regularly in a number of counties. Dr. Detwiler has recorded a nest and eggs from near Bethlehem, Pa., but since he has made a number of questionable assertions, his data is disregarded. In the marshes along the Susquehanna River near Marietta and Lebanon, the Bittern seems to be a regular tho scarce breeder (Warren's Report). More recently, I have observed the Bittern in the breeding season in Huntingdon and Center Counties, while Mr. R. B. Simpson tells me they breed regularly on the marshes along Lake Erie and probably in other restricted localities. No sets of eggs seem to be recorded, but the evidence that the

bird nests is indisputable.

191. Ixobrychus exilis (Gmel.). Least Bittern.

The Least Bittern is one of the little-known birds of the state, and yet in favorable localities it is fairly common and at times has been an abundant breeder, even within the city of Philadelphia. Along the lower Delaware River in Delaware and Philadelphia Counties as well as at Erie along the lake shore, the bird is a regular summer resident, while it has been found less common in Washington County and once, far from tidewater, at Berwyn, Chester County (Redfield). No records have been obtained from the Susquehanna Valley, but it seem probable that the bird should nest there as in the other sections of the state where the Cat-tails and Sweet Flags grow in extensive patches.

194. Ardea herodias herodias Linn. Great Blue Heron.

Formerly the Great Blue Heron nested locally thruout the whole state, but is now almost wholly extinct as a nester. We have been unable to learn of a single colony in southeastern Pennsylvania. Dr. Jack collected a set of eggs near Media, Delaware County, and this seems to be the only evidence of nesting about Philadelphia. In the wilder mountainous regions, a few colonies still exist,

those known being in Wayne, Wyoming, and Warren Counties.

201. Butorides virescens virescens (Linn.). Little Green Heron.

This small Heron is generally distributed thruout the whole state, but scarce in the mountainous and wooded sections of the Canadian fauna. It is very common in the counties lying within the Carolinian and Alleghanian fauna.

202. Nycticorax nycticorax naevius (Bodd.). Black-crowned Night Heron.

The Night Heron is locally a common breeder thru sections of the Carolinoan and Alleghanian fauna. It does not appear to nest in the Canadian life zone. Colonies occur in Delaware, Chester, Montgomery, Bucks, Berks, Lancaster, and York Counties, tho the birds are yearly becoming more rare, and many colonies have recently been exterminated. It does not breed in the central and northern parts of the state, while investigation in Warren, Green, Washington, and Erie Counties has failed to reveal it.

208. Rallus elegans Aud. King Rail.

The King Rail is a rather scarce and irregular breeder thruout certain localities in the Carolinian and Alleghanian fauna. It is apparently confined to the Delaware Valley except in the vicinity of Erie where it probably nests.

212. Rallus virginianus Linn. Virginia Rail.

This small Rail occurs sporadically in the Carolinian and Alleghanian zones thruout eastern and central Pennsylvania, but as yet no definite breeding records have been established in western Pennsylvania. Sets of eggs have been taken in the following counties: Delaware (Hughes and Reed), Chester (Jackson), Philadelphia (Miller), and Center (Harlow). It undoubtedly occurs as a summer resident in suitable swamps in Lebanon, Lancaster, Montgomery, Bucks, Clinton, Clearfield, Northumberland, and Lycoming Counties.

214. Porzana carolina (Linn.). Sora.

The Sora is locally a common summer resident in suitable sections of the northern half of the state, tho very rare in the southern sections. The Sora Rail undoubtedly breeds in Erie, Clinton, Lycoming, and Lackawanna Counties (Warren), but the only counties where it

has actually been found nesting are Delaware (record-Hughes) and Center, where it is quite common.

219. Gallinula galeata galeata (Licht.). Florida Gallinule.

The Florida Gallinule is apparantly limited to a few favored localities in Philadelphia and Delaware Counties. For several years this bird was an abundant breeder in the swamps about Port Richmond and Bridesburg, Philadelphia and less common at Tinicum in Delaware County.

228. Philohela minor (Gmel.).American Woodcock.

Tho now rare in many of the more thickly populated counties, the Woodcock still breeds regularly, tho far less common than heretofore, in practically every county of the state. Mr. R. F. Miller writes me that it is a rare summer resident in Philadelphia County, and Mr. S. S. Dickey tells me it is rare in Green County, tho several sets were taken there in former years. In southeastern and southwestern Pennsylvania it is undoubtedly a rare breeder, but thruout the mountain swamps and in Erie and Crawford Counties, Woodcock are still far from rare, tho they could hardly be classed as common. Mr.SSimpson finds only a few pairs breeding about Warren, but in Center and Huntingdon Counties I have found it common in the swampy bottom-lands and have seen the young recently hatched. Dr. Warren

quotes them as especially common in Wayne, Bradford, Susquehanna, Cumberland, Crawford, Clarion, and Montour Counties.

256. Helodromas solitarius solitarius (Wils.). Solitary Sandpiper.

Tho undoubtedly rare as a breeder, the Solitary Sandpiper nests locally and sporadically in suitable sections of Pennsylvania lying within the Canadian fauna. Probably some of the extant records of summering Solitary Sandpipers are not of breeding birds, for the birds linger often till early June and reappear in the latter half of July. Dr. Warren quotes several cases of birds summering in Crawford, Perry, Clinton, Union, Lycoming, and Northumberland Counties. Probably some of these birds were late or early migrants, the best authority coming from Professor H. J. Roddy, who says, "In the latter part of June, 1884, I shot an adult male Solitary Sandpiper. There were a pair of them in the swamp, and from their actions they were nesting." Mr. R. B. Simpson has also noted it in summer in Warren County, tho he has obtained no conclusions as to its breeding. Messrs. Cornelius Weygandt and Witmer Stone have observed it during the breeding season near Cresco, Monroe County (Cassinia 1905). The most conclusive evidence as to its breeding seems to be the notes of the author (Cassinia 1905 and Oologist 1906 pp 39-40) who found a pair along a mountain stream near La Anna, Pike

County, in early August, 1905, and cought and examined one of three young as yet unable to fly, tho well feathered, one of the old birds meanwhile trying every typical Sandpiper ruse to draw him away. This young bird could swim with great facility.

261. Bartramia longicauda (Bechst.). Upland Plover.

The Upland Plover is locally and irregularly distributed thruout those portions of Pennsylvania lying within the Carolinian and Alleghanian faunas. Mr. Miller writes me that he saw one on June 26, 1903, at Sandiford, Philadelphia County, where it formerly nested. In Delaware County it seems to be rare, but in portions of Chester County it is still a regular breeder, and a number of sets have been collected in the vicinity of West Chester (Swayne and Sharpless). Mr. Chreswell J. Hunt reported it as quite common near Cupola, Chester County. In Montgomery County it has been found breeding by Mr. Thomas Gillin of Ambler, and in Bucks County by Mr. H. Doon and R. C. Harlow. In sections of Lancaster, York, Adams, Lebanon, Dauphin, Perry, Berks, and Northumberland Counties, it breeds regularly but locally as well as in Cumberland County. In western Pennsylvania, it is somewhat rare, but breeds regularly in Crawford and Erie Counties. Thruout the larger part of its breeding range in Pennsylvania, the Upland Plover is now becoming a rare bird, and but few

nests have been taken in recent years. It occurs from April 20 to September 12.

263. Actitis macularia (Linn.). Spotted Sandpiper.

The little Spotted Sandpiper or Tilt-up is a common and well distributed breeder from April 20 to the last of September. This is the sandpiper which is seen so commonly along streams and about ponds thruout the summer months, breeding in the open country in every county of the state, but being especially abundant in the river valleys of the Delaware, Schuylkill, Susquehanna, and Alleghany and along the shore of lake Erie.

273. Oxyechus vociferus vociferus (Linn.). Killdeer.

The Killdeer is a rather common bird, and generally distributed thruout the sections of Pennsylvania embraced in the Carolinian and Alleghanian faunas. In the northern counties it becomes rare, and in the Canadian faunal zone it very locally distributed and rare at all times. Thru sections of Montgomery, Bucks, Chester, Lancaster, York, and Berks Counties, this bird is very common. About Warren it is very rare, but in Erie County, it is found more commonly. Ihave been unable to get any breeding records from Pike, Wayne, and Monroe Counties, tho it probably nests locally. In Center County, Huntingdon, Adams,

[illegible]

and Franklin Counties, I have often found them,while in southwestern Pennsylvania they are regular breeders.

277. Aegialitis meloda (Ord). Piping Plover.

The Piping Plover formerly nested regularly, tho never commonly, along the outside beach of the Peninsula at Erie, Erie County. Persecution has now reduced them until but a pair or two breed there. Mr. R. B. Simpson of Warren, appears to have collected the only set taken in the state, and I quote from his letter concerning it, "A pair of Piping Plover (possibly two pairs) nest each season on the wide outside beach of the 'Peninsula' where, on May 31st, 1911, I found a set of three slightly incubated eggs. This is the only spot in the state where the Piper nests, as it is about the only place that really suits them for a nesting site."

289. Colinus virginianus virginianus (Linn.). Bob-white.

This well known game bird formerly occurred thruout nearly the whole of the state. The rigorous winters of the northern and mountain counties were apparently too much for them, and it is now rare and almost unknown thru most of the section covered by the Canadian faunal zone. It is generally much less common than heretofore owing to the great number of gunners. In the southeastern

portion of the state, the Bob-white is now a scarce bird. The center of abundance of the Bob-white seems to be along the southern tier of counties, especially from York to Greene Counties. In sections of Dauphin County I have found it quite common, while in Greene County it is very common, according to my friend Mr. S. S. Dickey. In Center County, however, it is quite rare, and about Warren, Mr. R. B. Simpson has found it breeding on but one occasion.

300. Bonasa umbellus umbellus (Linn.). Ruffed Grouse.

The Ruffed Grouse or Pheasant is still quite common as a breeder thruout the mountainous, thinly populated districts of Pennsylvania, as central and northern tier of counties, elsewhere rare. With the exception of a few counties in the southeastern part of the state (Delaware and Philadelphia) and in the vicinity of Pittsburg in the southwestern portion, the Grouse still breeds in practically every county of the state. It is generally less common than heretofore. In sections of Pike, Wayne, Monroe, Warren, Center, and Huntingdon Counties, I have found the Grouse to be abundant in favorable localities. Mr. S. S. Dickey finds them fairly common in Greene County, and along the southern tier they occur regularly in Somerset, Bedford, Fulton, Adams, and Franklin Counties, but not so abundantly as farther north.

306. Tympanuchus cupido (Linn.). Heath Hen.

Turnbull, in writing of this species, says that a few still survived in Monroe and Northampton Counties in 1869 (Stone's Birds of Eastern Pennsylvania and New Jersey). It apparently became extinct in the state as well as in New Jersey about 1870.

310a. Meleagris gallopavo silvestris Vieill. Wild Turkey.

Despite the fact of its growing scarcity everywhere, the Wild Turkey still clings on in the wild, mountainous districts of Pennsylvania, and in the year 1912, according to the statistics of the Game Commission, nearly a thousand Wild Turkeys were killed within the limits of Pennsylvania. In Monroe and Pike, as well as in the the whole northern tier of counties, the Wild Turkey seems to be extinct, as well as thru the southeastern and southwestern portions of the state. In Fulton, Bedford, Somerset, Franklin, Adams, and Perry Counties, they still breed regularly, and as far north as Lycoming County, where a nest was found by Charles Welshans in 1912 near Jersey Shore. In portions of Center and Hundington Counties, I have found the Wild Turkey to be a regular and tolerably common permanent resident, tho rarely seen. Altho I have never found the nest, they breed regularly on the mountains in Center County and near Buffalo Run in Patton

Township. Farmers tell me that they frequently see the young, escorted by the parent, feeding in the open fields near the woods.

315. Ectopistes migratorius (Linn.). Passenger Pigeon.

Years ago the Wild Pigeon nested in great numbers in many of the counties of the state, but particularly so along the northern tier. Now they are all gone, followers of the Great Auk down the path to extinction, driven by the ruthless hand of man. According to Dr. Warren (Birds of Pennsylvania), a few pairs still breed in Luzerne County as late as 1889, and Mr. Frank L. Burns (Wilson Bulletin, March 1910) records a probable nest and one egg taken in Lancaster County in 1889. Prior to 1880, the Pigeon nested in great numbers in Potter, McKean, Cameron, Elk, Forest, and Warren Counties, as well as less common in Crawford and Erie Counties (Warren). Dr. Warren quotes Mr. Otto Behr as follows:- "The last pigeon roost was here in 1869. .....They say the nesting ground, which was along the Mehoopany Creek, Wyoming County, four miles from here, was seven miles long by two or three wide. In 1876, they started to build again, when a snow storm drove them off."

316. Zenaidura macroura carolinensis (Linn.). Mourning Dove.

The Dove is one of the most common and generally distributed birds that nest within the state . In the southern counties, they frequently remain thruout the winter but the majority arrive in early March, and a month later have started to nest. It appears to nest within every county of the state, but seems more abundant in the Alleghanian fauna than elsewhere. During the breeding season, they are found in pairs, but at other seasons, they seem gregarious to a marked degree.

325. Cathartes aura septentrionalis Wied. Turkey Vulture.

This species is distributed regularly and quite commonly thru most of the sections of the state lying within the Carolinian and Alleghanian faunas, and breeding very rarely in the Canadian faunal zone. Thruout the southern tier of counties, it breeds commonly, tho it does not nest in any appreciable number in Green County (Dickey) or in western Pennsylvania. In portions of Chester, Delaware, York, Franklin, and Adams Counties, the Buzzard is very common and seems to reach the center of abundance in the Susquehanna Valley. As far north as Center County, it is a regular breeder, but in eastern Pennsylvania, it appears to the north of Bucks County. A number of sets have been taken in Chester County by Messrs. Jackson,

Sharpless, Stone, Woodward, Swayne, and Warren, while in Delaware County, sets have been secured in the Crun Creek Valley by Messrs. Jack, Harrower, and Mercur.

331. Circus hudsonius (Linn.). Marsh Hawk.

The Marsh Hawk, tho a comparatively common transient and winter resident, is a very rare, tho probably regular breeder in Pennsylvania. It undoubtedly nests in the extensive swamps along the Susquehanna River, but no actual nests seem to have been found in this locality. Dr. Warren, in his"Birds of Pennsylvania", cites it as an apparently common breeder, but recent data establishes conclusively the fact that it is now decidedly rare, and several of ~~XXXXXXXX~~ Dr. Warren's breeding records seem to be based on insufficient evidence. It is, apparently, most frequently observed during the summer in the northern tier of counties and has been recorded during that time from Sullivan County (Stone and Behr), Center County (Harlow), and Erie County (Simpson). It undoubtedly nests in Crawford County, but the only nest actually found in the state, of which I ~~XXXX~~ am able to find record, was taken on May 31, 1911, on the Peninsula at Erie.

332. Accipiter velox (Wils.). Sharp-shinned Hawk.

This species was formerly a common bird thruout

the whole state, but owing to constant persecution is growing very rare as a breeder, especially in the more settled portions. In southeastern Pennsylvania, this Hawk is practically exterminated as a breeder in Philadelphia, Delaware, and Chester Counties, while the same is true in the southwestern portions of the state. In the northern tier of counties, it still breeds but is never common. Mr. Simpson writes me as follows:- "Regular but not common in Warren County as a breeder, tho I have taken a number of sets." Mr. Thomas H. Jackson writes me that he collected sets of Sharp-shinned Hawk in Chester County on May 31, 1887 and June 6, 1896, while a set was taken near Berwyn by Dr. Rotzell on May 23, 1889. In Berks County several sets have been taken near Fleetwood by Messrs. Leibelsberger and Gruber, and in Northampton County by Riecksecker. In Pike County, I found a nest with four young and an addled egg on July 18, 1909. Mr. J. Warren Jacobs writes me that it is rare in Green County. He has one set of two eggs taken May 21, 1892 and found a nest with five young, June 21, 1894. In Somerset, Bedford, Fulton, and most of the wilder counties, it still breeds rarely, but not so often as it does in the northern counties, tho it is scarce even there.

333. Accipiter cooperi (Bonap.). Cooper's Hawk.

Among the various Hawks which rear their young

within the limits of our state, this is undoubtedly the most common breeder, with the exception of the little Sparrow Hawk. It probably breeds in every county of the state, tho rather rarely in the Canadian life zone. This is by far the most destructive and the most common breeder of the larger hawks in southeastern Pennsylvania. Mr. S. S. Dickey reports it as a regular, tho not very common breeder in Green county; Mr. L. F. Engle says it is common in Somerset County; Mr. R. B. Simpson finds it regular but rare at Warren, while the author has either taken sets or seen breeding birds in Philadelphia, Center, Delaware, Montgomery, Bucks, Franklin, Adams, Pike, Wayne, Monroe, Luzerne, Chester, and Huntingdon Counties.

334. Astur atricapillus atricapillus (Wils.). Goshawk.

The Goshawk was formerly a regular breeder in the dense primeval Hemlock and Beech of the northern Pennsylvania mountains. Dr. Warren, in his "Birds of Pennsylvania", states that"years ago these hawks, it is said, were very frequently seen during all seasons in the counties of Cameron, Elk, Warren, Potter, Wyoming, Forest, and McKean." They were also reported to breed in Center County, but I have never been able to get a definite record in five years' search. Probably the only places where these hawks now nest are in heavily timbered sections of Warren, Forest,

and Sullivan Counties.

337. Buteo borealis borealis (Gmel.). Red-tailed Hawk.

When Dr. Warren wrote his "Birds of Pennsylvania", he classed the Red-tailed Hawk as the most common of our raptors. Now, however, owing to constant persecution, it has become a rare bird thru most of the central and eastern counties and appears to be a common breeder only in the southwestern and western counties. According to my friend, Mr. S. S. Dickey, it is considerably less abundant than formerly, but still remains a regular and fairly common breeder in Fayette, Westmoreland, Washington, Green, Mercer, Allegheny, and Fulton Counties. Mr. Engle has recently collected eggs of this species in Somerset County and in Warren County. Mr. Simpson says that it is scarce but breeds regularly in the big timber in the mountains. With the exception of Philadelphia County, it probably breeds in every county of the state, but in northeastern and northern Pennsylvania is far less common than the Red Shouldered Hawk. In southeastern Pennsylvania, it is rare as a breeder, tho it seems to nest regularly in the timbered portions of Chester County.

339. Buteo lineatus lineatus (Gmel.). Red-shouldered Hawk.

The Red-shouldered Hawk is resident thruout the greater portion of the state but seems to be of very local distribution. About Philadelhpia it is very common in winter but is almost unknown as a breeder. Stone, in his "Birds of Eastern Pennsylvania and New Jersey", states that Dr. W. E. Hughes has found it nesting near Phoenixville years ago. In general, the Red-shouldered Hawk seems rare as a breeder thruout the sections of Pennsylvania lying within the Carolinian fauna, grows more in the Alleghanian zone, and breeds quite commonly in the Canadian life zone. Mr. Richard F. Miller found it breeding once near Walnut Hill, Montgomery County. Mr. S. S. Dickey tells me it is rare in Green County, and he has found but one nest. I have no records of its breeding from the central and south-central portions of the state, but thru the northern tier of counties it is a very common breeder, and I have found a number of nests in Wayne, Pike, and Warren Counties. Mr. Simpson writes me of the bird in Warren County, "The commonest breeding hawk found here."

343. Buteo platypterus platypterus (Vieill.). Broad-winged Hawk.

The Broad-winged Hawk seems to have been one of those favored birds that have increased within our

boundaries during the last ten years. Mr. Frank S. Burns, in his wonderful monograph of this species, gives the best possible resume of its breeding habits in Pennsylvania, and Mr. R. P. Sharpless in Cassinia (1909) also gives a very good account of its status in Pennsylvania. To the best of my knowledge, sets have been taken in the following counties: Pike (Rath), Monroe, Northampton (both for Norris), Berks (Leibelsperger), Bucks (several), Montgomery (several), Delaware (several), Chester (several), Renova (Pierce), Green (Jacobs), Hundington (Harlow), Center (Harlow), and Warren (Simpson). It probably breeds sparingly in nearly every county of the state but seems less common in the northern sections embraced by the Canadian fauna and is unknown as a breeder close to Pittsburg, tho I have found it nesting near Foxburg, Clarion County.

352. Haliaeetus leucocephalus leucocephalus (Linn.). Bald Eagle.

The Bald Eagle, tho much more rare than formerly, still occurs in Pennsylvania at all seasons of the year and is still a regular breeder at several places within our commonwealth. At present to the best of my knowledge, pairs are known to breed in the following counties: Lancaster, Wayne, and Erie, as well as in a few scattered localities thruout the Pennsylvania mountains. A pair or two undoubtedly nest either along the upper Delaware or on

the nearby lakes in Pike County, as they occur regularly in these localities. Along the lower Susquehanna River, several pairs bred formerly, but they are now greatly reduced, and it is doubtful if more than two nests are still used in this locality. Along the Lake Erie Shore in Erie County, however, several pairs still nest regularly, being rigidly protected by the farmers, and birds are frequently seen in this vicinity.

356. Falco peregrinus anatum (Bonap.). Duck Hawk.

This bold and beautiful falcon, the Peregrine of poetry, still breeds regularly in suitable places thruout the eastern portion of Pennsylvania. There do not seem to be any records of its breeding from the western parts of the state, but on the rocky cliffs of the Delaware, the Lehigh, and the Susquehanna, the Duck Hawk still rears its young.

360. Falco sparverius sparverius Linn. Sparrow Hawk.

Thruout the Carolinian and Alleghanian life zones the Sparrow Hawk is generally well distributed, and in eastern and central Pennsylvania it is by far the most common breeding hawk. In Green County, Mr. Dickey tells me it is regular but never very common. The Sparrow Hawk probably breeds in every county of the state, but in most

parts of the Canadian life zone it is rather rare. In Warren County, Mr. Simpson writes that it is a rare breeder, and I have found it the same in Pike, Monroe, Wayne, Luzerne, and Clarion Counties. In Chester, York, Lancaster, Montgomery, Philadelphia, and Bucks Counties, it might be called abundant, while in the farming land of Center County it is a very common species.

364. Pandion haliaetus carolinensis (Gmel.). Osprey.

The Osprey, or Fish Hawk, is commonly seen in Pennsylvania as a migrant during the last week in March and again thru September. It has been reported as breeding in a number of localities in Pennsylvania, but authentic records are few, and considering the fact that no record has been found of a single authentic Pennsylvania set of eggs, it will have to be classed as one of our rarest breeders. According to Dr. Warren (Birds of Pennsylvania) a few pairs nest along the southern Susquehanna. About 1880 a nest with young was found along the Brandywine Creek near Chadds Ford, Delaware County, by Joseph Price. The Osprey has not for years bred in southeastern Pennsylvania, tho very common on the New Jersey side of Delaware Bay. During the past five years I have seen birds of this species almost everysummer (June and July) in Monroe and Pike Counties, and they probably nest on some of the isolated

lakes in Pike County. In June 1910, I met with a pair of these birds that were undoubtedly breeding near Foxburg, Clarion County. Practically all of my correspondents fail to mention it as a breeder.

365. Aluco pratincola (Bonap.). Barn Owl.

The Barn or Monkey-faced Owl is one of the few birds that seem able to withstand the advances of cilivization. Where twenty years ago, the Barn Owl was regarded as a scarce bird, it has now grown quite common, especially thruout Chester, Montgomery, Delaware, York, and Cumberland Counties. It breeds regularly and commonly in many localities within the Carolinian fauna, with the exception of southwestern Pennsylvania, where Mr. Dickey finds them unknown at present as breeders in Green County, tho it has been found rarely nesting in Allegheny, Fayette, and Beaver Counties. It seems to be pushing farther back into the Alleghanian Life zone, for it has recently been found breeding by Mr. Leibelsperger near Fleetwood, Berks County. At present I have definite knowledge of the Barn Owl's nesting in the following counties: Alleghany, Beaver, Berks, Cumberland, Chester, Dauphin, Delaware, Fayette, Lancaster, Franklin, Adams, Montgomery, Bucks, Philadelphia, Lebanon, and York.

366. Asio wilsonianus (Less.). Long-eared Owl.

This nocturnal, medium-sized, Owl, altho a fairly common winter resident, seems to be decidedly rare and local as a breeder, and thruout the greater portion of the state, does not seem to nest. Dr. Warren, in his "Birds of Pennsylvania", mentions having found several nests in Chester County and also records a nest found by Audubon on the Juniata River. Mr. Witmer Stone (Birds of Eastern Pennsylvania and New Jersey) also mentions a nest found near Valley Forge, Montgomery County, by Dr. W. E. Hughes. Mr. Richard F. Miller writes me that on June 9, 1899, he discovered four fledglings of the Long-eared Owl, but the bird is now probably extinct as a nester in this county. Most of the Pennsylvania sets of Long-eared Owl seem to have come from Chester and Montgomery Counties. Mr. Thos. H. Jackson writes me that he took a set of five half-incubated eggs near West Chester on April 15, 1870, and nest with five fresh eggs on April 1, 1902, while Mr. C. J. Pennock took a nest near Kennett Square on . In Montgomery County, Messrs. Thos. H. Gillin,and G. B. Benners have taken several sets near North Wales between the dates of April 17 and May 2, while the author has observed the birds near Edge Hill, thruout the year. From the western and mountain regions, I have no authentic breeding record, tho it probably breeds sporadically and rarely thruout the XXXXX entire state.

367. Asio flammeus (Pont.). Short-eared Owl.

The Short-eared or Marsh Owl occurs in Pennsylvania as a comparatively common winter resident on most of our extensive marshes. As a breeder, however, it is one of the rarest of our birds, and the nest found by Audubon on June 17 (early part of the 19th century) in the Great Pine Forest seems to be the only actually recorded nest from the state. There is a possibility of the Short-eared Owl breeding rarely in Delaware, Lebanon, Dauphin, Erie, and any of the other counties within whose confines extensive patches of marsh land occur. It is the firm belief of the author that this species still breeds irregularly in the state, especially in the marshes of Erie County. At Edge Hill, Montgomery County, during the season of 1907, I observed and heard calling an individual of this species on April 19 and again on May 28, but no actual evidence of the breeding was obtained.

368. Strix varia varia Barton. Barred Owl.

With the possible exception of Philadelphia, Chester(?), Montgomery, Allegheny, and Green(?) Counties, the Barred Owl probably still breeds in practically every county of the state, tho it is rare outside of the mountainous and heavily wooded regions. Mr. Dickey tells me that neither he nor Mr. J. Warren Jacobs have found it about Waynesburg in Green County. In Pike, Monroe, and

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Wayne Counties, it is a regular tho never very common breeder, while Mr. Simpson writes me that in Warren it is a regular breeder, having eggs about March 25. In Franklin, Adams, Center, Huntingdon, and Clarion Counties, I have observed the Barred Owls in the breeding season, tho they are everywhere growing more scarce. Several years ago, Mr. Harrower tells me, a set was taken near Media in the Crum Creek Valley, but it is now a very rare breeder in the southeastern counties.

372. Cryptoglaux acadica acadica (Gmel.). Saw-whet Owl.

Because of its very small size and retiring habits, this quaint little species has long been considered one of the rarest of our owls. In spite of the fact that only one nest seems to have been taken in the state, the Accadian Owl is a regular tho rare breeder in the mountainous, wooded sections lying in the Canadian life zone. In Samuel's work on "Our Northern and Eastern Birds", the following account is given by Richard Christ of a nest found at Nazareth. "On the 25th of April, 1867, I was so fortunate as to find a nest of one of these birds. It was placed in the hollow of a tree, about twenty feet from the ground; the entrance to the hole was very small, scarcely two inches in diameter. In.....looking into the hollow, I discovered sitting on the bottom what I

supposed might be a small owl. Uncertain as to the truth, I introduced a stick into the hole and turned the bird over on her side, she making no struggle but remaining perfectly still as if dead. I discovered that she was sitting upon a single egg;.....on the fifth day after, I again examined the nest; I enlarged the hole,and took the egg, leaving the owl quietly sitting on the rotten chips which formed the bottom of the nest." In Dr. Warren's "Birds of Pennsylvania", he quotes Mr. Otto Behr of Lopez, Sullivan County, as follows: "The Acadian Owl is quite common here, tho not often seem; The young leave the nest about the first week in May. They make a noise which sounds like a dog sniffing the air." Mr. Witmer Stone, in his "Birds of Eastern Pennsylvania and New Jersey", mentioned a specimen in the first plumage taken by Mr. W. L. Bailey near Rasselas, Elk County June 30, 1894, while in June 1908, Mr. Stone took the young in the juvenal plumage near Lopez. Mr. R. B. Simpson writes me that he captured a bird in the juvenal plumage near Warren, Warren County, on June 19, 1911. It undoubtedly breeds in most of the counties lying within the Canadian Life zone.

373. Otus asio asio (Linn.). Screech Owl.

The well known little Screech Owl is the most common of all the owls found in Pennsylvania. About

Philadelphia the red phase of plumage is the most common, while in Center County the gray phase predominates. Altho breeding in every county of the state, it is much more common in the open farming country and the woodlot than in the dense forests and second growth of the mountains. A favorite haunt is an old apple orchard, or an open grove along a ste stream, where they may be found thruout the year.

375. Bubo virginianus virginianus (Gmel.). Great Horned Owl.

In former years, this was a common bird thruout the wild and timbered portions of the state. Altho it still breeds in practically every county, with the exception of Philadelphia, it is now greatly reduced in numbers, and in the southeastern counties especially, it is one of the rarest of the breeders. In former years, it was comparatively common in Chester County, where Mr. Thos. H. Jackson found a number of nests; about fifteen nests were found in the vicinity of Kennett Square. In Upper Bucks County, it still breeds, tho it now is a rare bird. In Center, Huntingdon, Pike, Monroe, Wayne, Adams, Franklin, and Clarion Counties, I have found the Horned Owl as a resident wherever there are large patches of old, uncut timber. Mr. R.B. Simpson writes me that in Warren it is a fairly common breeder, having fresh eggs about March 1. In southwestern Pennsylvania, Mr. S. S. Dickey still finds them breeding about

Waynesburg, Green County, and during the season of 1910 collected four sets of eggs.

387. Coccyzus americanus americanus (Linn.). Yellow-billed Cuckoo.

The Yellow-billed Cuckoo, or Rain Crow, is the common cuckoo of the Carolinian and Alleghanian life zones, becoming rare in the northern and mountainous counties. In southeastern Pennsylvania, it is very common, while Mr. Dickey finds it regularly in the southwestern portions of the state. As we approach the foothills of the Alleghanies, it is gradually replaced by the Black-billed Species, and Mr. Simpson writes me that it is very rare at Warren, while I have found it only on very rare occasions in Pike, Monroe, and Wayne Counties. In Center County, it is a regular breeder in the open valleys and gradually appears to be pushing its way northward.

388. Coccyzus erythrophthalmus (Wils.). Black-billed Cuckoo.

In the southern counties, the Black-billed Cuckoo is a rare breeder, tho probably regular. In the Alleghanian and middle counties, both species occur often, while in the mountain and northern sections the Black-billed is a common bird and practically replaces the Yellow-billed variety.

Mr. Miller has taken several nests about Philadelphia and formerly found the birds regularly on Petty's Island. In Montgomery and Delaware Counties, I have found but two nests while Mr. Dickey reports it as rare in Green County. In Warren, Monroe, Pike, Clarion, Venango, Wayne, and Luzerne, I have found this species a common summer resident and less so in Center and Hundington Counties.

390. Ceryle aleyon (Linn.). Belted Kingfisher.

This species is one of the most generally known birds thruout the entire state. Breeding in every county, regardless of fauna, it is nevertheless a bird whose abundance is frequently overrated owing to its striking markings and rattling call. From Delaware to Green Counties in the south to Pike and Erie in the north, this bird has been found nesting, either by friends, or myself, but it reaches its greatest abundance in those counties having rivers or creeks with high banks.

393. Dryobates villosus villosus (Linn.). Hairy Woodpecker.

Despite the fact that this Woodpecker breeds regularly in practically every county of the stato, very few collectors have taken many sets of its eggs. Formerly it was a rare breeder in Philadelphia and Montgomery Counties,

but recently has become more common, and Mr. Richard F. Miller took two sets near Philadelphia in 1912. Mr. Behr has taken sets in Sullivan County and Mr. Simpson in Warren County, while several sets have been taken in Chester County. In Green County, Mr. Dickey finds this species nesting regularly about Waynesburg and has collected several sets of eggs. I have found several nests of this woodpecker in early May in Philadelphia and Montgomery Counties, but in every instance the eggs were hatched.

394c. Dryobates pubescens medianus (Swains.). Northern Downy Woodpecker.

The little Downy Woodpecker, or Sapsucker as it is erroneously called, is everywhere a common bird, nesting in every county of the state, and replacing the Hairy to a great extent in the more settled sections. It is a permanent resident and is one of the most confiding birds that we have. It is reported as breeding commonly in all sections of the state by my correspondents.

402. Sphyrapicus varius varius (Linn.). Yellow-bellied Sapsucker.

This handsome bird, tho quite common with us as a migrant, is nowhere a common breeder in the state. It

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appears to be limited to those mountainous counties which are especially favorable to the more northern species of our Canadian breeders, such as the Winter Wren, Olive-sided Flycatcher, Olive-backed Thrush, and Golden-crowned Kinglet. Dr. Warren (Warren's Report) gives it as a regular breeder in portions of Cumberland(?), Sullivan, and McKean Counties. Mr. Stone, in his "Birds of Eastern Pennsylvania and New Jersey", records it as breeding at Harvey's Lake, Luzerne County, and on North Mountain (Dwight - Auk 1892). From Warren County, Mr. Simpson writes me, "A few pairs breed back in the mountains in slashings and deforested regions but nest high." Personally I have found the Sapsucker breeding in Monroe, Pike, and Wayne Counties but always uncommon and in the vicinity of large dead stubs in slashings or swamps. As yet no set of eggs seems to be recorded from this state, tho several nests have been found.

405a. Phloeotomus pileatus abieticola (Bangs). Northern Pileated Woodpecker.

This magnificent, red-crested, black Woodpecker was once common thruout the heavily timbered region of the state. With the cutting of the timber, it has become greatly reduced until it is now on the verge of extinction and apparently limited to the wilder, heavily timbered mountainous regions, with the exception of portion of Green County,

where a few pairs still linger along the West Virginia line. During the past five years, I have found it still breeding yearly in sections of Pike, Wayne, Center, Huntingdon, Clinton, and Warren Counties, and it still breeds more or less rarely in most of the mountain counties. Years ago, Mr. J. Warren Jacobs took several sets of this bird in Green County, a set of three egs in his collection being taken there May 21, 1887, and Mr. Dickey tells me that they still breed there. In Warren County, Mr Simpson finds them breeding regularly during the first week in May, but the nests are high and hard to reach.

406. Melanerpes erythrocephalus (Linn.). Red-headed Woodpecker.

Of all our Wddopeckers, the Red-headed seems to have the most peculiar habits in Pennsylvania. Usually a bird of the Carolinian fauna and the open farming country, it is gradually replacing the Pileated in many of the northern counties and seems particularly adapted to fit itself to any circumstance. About Philadelphia, it is a somewhat uncommon bird but apparently increasing during the last few years, and at present I know of a number of nesting places within twelve miles of the city. It is fairly common in Green County and one of the most abundant birds in Center County. In the northern tier, it is rather uncommon, but is

gradually spreading, and even at present, undoubtedly nests in every county of the state.

409. Centuruscarolinus (Linn.). Red-bellied Woodpecker.

Prior to 1850, this species was reported as breeding in Cumberland County by Messrs. Baird, and later (1870) in Lancaster County, by Judge Libhart (Warren's Report). Now it is found breeding only in the extreme southern tier of counties from Adams west, and seems to be regular only in portions of Washington and Green Counties. During the season of 1908, Mr. Witmer Stone found a pair of these birds apparently breeding in Fulton County. With this exception, all the actual nesting records come from Washington and Green Counties. Dr. Warren in his report records them as breeding in Washington and mentions a nest found by Mr. W. F. Warrich on March 25, 1883. More recently, Messrs. J. Warren Jacobs and S. S. Dickey have found them breeding regularly in the vicinity of Waynesburg, and have collected a number of sets of eggs.

412a. Colaptes auratus luteus Bangs. Northern Flicker.

This is perhaps the most widely known woodpecker in the state, occuring thruout the state as an abundant breeder and remaining in many of the southern counties as a

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winter resident. The Flicker nests in every county of the state but is always more abundant in the open farming regions than in the wilder forested sections.

417. Antrostomus vorciferus vorciferus (Wils.). Whip-poor-will.

This species, the common in migrations, is a rare breeder, except in the wilder and more mountainous regions of the state. At the present time, the Whip- poor-will is a rare nester in southeastern Pennsylvania but more common in the less thickly populated sections. In Berks County, Mr. Leibelsperger finds it as a frequent breeder and has taken several sets of eggs about Fleetwood. In sections of Monroe, Pike, Wayne, Luzerne, Center, Huntingdon, Clarion, and Venango Counties, I have found this bird not uncommon during the breeding season, while Mr. Simpson finds them regularly in the mountains of Warren County. Mr. Dickey tells me that it is a common breeder at Waynesburg, Green County.

420. Chordeilés virginianus virginianus (Gmel.). Nighthawk.

The Nighthawk has a peculiar distribution in Pennsylvania, occuring locally as a breeder in all three life zones. Some years ago, Mr. J. Parker Norris secured a set

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from a gravel roof in the center of Philadelphia, but it is now practically unknown as a breeder in that locality. In Chester and upper Montgomery Counties, it breeds, but thruout most of southeastern Pennsylvania does not nest commonly. Mr. Leibelsperger finds it breeding regularly and abundantly in Berks County, and thru the larger part of the Allegheanian life zone in the eastern half of the state, it is a regular and common ZZZZZZZ bird, while in Pike, Monroe, and Wayne Counties the birds, tho breeding yearly, are local. Mr Dickey reports that it does not nest in Washington and Green Counties except very rarely, while Mr. R. B. Simpson finds them almost unknown in Elk, Forest, and Warren Counties. Thruout Franklin, Center, Hundington, Venango, and Clarion Counties, I have observed it but very locally.

423. Chaetura pelagica (Linn.). Chimney Swift

The Chimney Swift is one of the most widely known and abundant of our nesting birds. From April twentieth to early October we may see their forms silhouetted against the sky or hear their rolling twitter. Here is one species for which civilization has little terror, save that its habits, especially in the nesting seasons, have undergone a radical change. It breeds abundantly in every county, even in the heart of our largest cities.

428. Archilochus colubris (Linn.). Ruby-throated Hummingbird.

The Ruby-throated Hummingbird is generally known thruout the state on account of its small size, irridescent plumage and swiftness of flight. It breeds thruout the state but is rather locally distributed, being much more common in certain localities than in others. In the immediate vicinity of Philadelphia, it is now a rare breeder. In southwestern Pennsylvania, Mr. Dickey finds it very abundant, while Mr. Simpson says it nests yearly in Warren County. In sections of Center, Hundington, Pike, Monroe, Wayne, Sullivan, Luzerne, Clarion, and Venango Counties, I have found it regular but never abundant, tho in Franklin and Adams Counties it was very common.

444. Tyrannus tyrannus (Linn.). Kingbird.

This pugnacious and well known feathered pugilist is a very common and well distributed bird thruout the state, nesting in the open farming country, tho less common than heretofore in the vicinity of Philadelphia.

452. Myiarchus cirinitus (Linn.). Crested Flycatcher.

This large, noisy flycatcher appears regularly in Pennsylvania about April 29 and nests more or less abundant-

ly in the farming or moderately wooded districts of every county. It reaches its greatest abundance in the Carolinian and Alleghanian life zones, growing rare in the northern tier of counties. In sections of Montgomery, Bucks, and ChesterCounties, the Crested Flycatcher is a very abundant and noticeable bird, while in Center County, nearly every orchard has its pair.

456. Sayornis phoebe (Lath.). Phoebe.

The well known Phoebe or Pewee is common thruout the entire state, sharing with the Robin, Bluebird, and Grackel the honor of being among the early spring arrivals. It is not a very abundant breeder in northern Philadelphia County but is generally distributed and nests commonly in all the counties. Practically all my correspondents have reported the Phoebe as one of the most abundant breeding birds.

459. Nuttallornis borealis (Swains.). Olive-sided Flycatcher.

This large flycatcher, tho breeding yearly in the heavily timbered regions of the mountainous counties lying within the Canadian life zone, is nevertheless one of the rarest species which make Pennsylvania its summer home. Dr. Warren gives it as a possible nester in Lycoming and

Perry Counties but gives no positive record. Mr. R. Young seems to have taken the first set of this species in the state when he secured a set of two eggs, July 4, 1895, in Schuylkill. Mr. Witmer Stone, in the Proceedings of the Delaware Valley Ornithological Club for 1898 - '99, mentions it to be a regular breeder in Sullivan County, where a nest and eggs were collected in June, 1898. Later, Mr. J. D. Carter finds it to be an infrequent nester at Pocono Lake, Monroe County, while in Pike and Wayne Counties it has been observed to be a rare summer resident by Mr. Harrower and the author, and I have also observed one bird with young near La Anna in August, 1905. Mr. R. B. Simpson of Warren, Warren County, has had more experience with these birds than any other ornithologist in the state and has found it as a rare and somewhat irregular summer resident in Warren, Elk, and Forest Counties and has taken several sets of eggs near Warren.

461. Myiochanes virens (Linn.). Wood Pewee.

The Wood Pewee breeds in every county of the state, being apparently most abundant in the section lying within the Alleghanian life zone. In Philadelphia and lower Montgomery Counties, it does not seem to be as abundant as elsewhere.

463. Empidonax flaviventris Baird. Yellow-bellied Flycatcher.

Despite the fact that no nests have been taken, this shy little Flycatcher undoubtedly breeds rarely, tho not regularly, on the higher parts of the Alleghanies lying within the Canadian life zone. Dr. Warren, in his "Birds of Pennsylvania", records it as a regular summer resident but does not cite any specific instances, except Mr. August Koch, who records it as common in Lycoming County. Recent searches for the bird in Lycoming County have been fruitless. Mr. Dwight found it on North Mountain in the breeding season about twenty years ago (Auk, 1892), while Mr. Stone records a bird observed in summer in Sullivan County by Mr. Otto Behr, which was evidently this species. Aside from these records, Mr. R. B. Simpson has noted it several times summering in thick, Rhoddodendron swamps near Warren but has never found the nest. Recent search in Pike, Wayne, Monroe, Sullivan, Center, and Huntingdon has failed to reveal this species, and it is undoubtedly one of the rarest breeding birds that we have.

465. Empidonax virescens (Vieill.). Acadian Flycatcher.

This small woodland Flycatcher is very abundant, especially in sections of the state lying in the Carolinian life zone. In the larger part of the Alleghanian faunal zone, it is uncommon but recently seems to be pushing northward with many of our typical Carolinian birds and is now

found rarely as a breeder, even in the Canadian zone. It is especially abundant in southeastern Pennsylvania, about Philadelphia and in the lower valley of the Susquehanna. Mr. Dickey records it as very common in Green County. Farther north I have found it to be an uncommon nester in Clarion, Huntingdon, and Center Counties, tho I have found the nest in all three counties. From Warren, in the heart of the Canadian life zone, Mr. Simpson writes "Found a nest and three eggs, June 14, 1912. My only breeding record and the long time I ever even met this bird here."

466a. Empidonax trailli alnorum Brewst. Alder Flycatcher.

The credit for adding the Alder Flycatcher to the list of birds breeding in Pennsylvania must be given to John D. Carter, who first observed them in the summer of 1906 about Pocono Lake, Monroe County. The following year, the author saw several birds of this species at Pocono Lake from June ninth to June sixteenth, and, tho no nests were found, the actions of the birds plainly showed that they were preparing to nest. There appeared to be several pairs scattered at intervals in the low, scrubby thickets along the edge of the lake. Mr. Weygandt, in Cassinia, records some birds seen near Cresco in July which were probably this species, and search should be made for it in similar localities among the northern tier of counties.

467. Empidonax minimus W. M. and S. F. Baird. Least Flycatcher.

The Least Flycatcher breeds yearly and somewhat frequently in all of the counties lying within the Alleghanian and Canadian faunas and rarely in the Carolinian. Mr. S. N. Rhoads records one nest in Delaware County, June 1, 1881 (B. N. O. C. 1882), while the author has noted it several times as an infrequent breeder in southern Montgomery County (Auk, Oct. 1908) and in Bucke County about Newtown. In Berks County it becomes very common, and Mr. Leibelsperger has taken a number of sets. In Center and Huntingdon Counties, it is regular but scarce as a breeder. Farther north in practically all the counties having pronounced Alleghanian and Canadina faunas, it is a common breeder.

474b. Octocoris alpestris praticola Hensh. Prairie Horned Lark.

Until quite recently, classed as one of the rarest of our breeding birds, the Prairie Horned Lark has now spread over nearly the entire western half of the state and is steadily pressing eastward and southward. Mr. Stone records pairs evidently nesting in Bradford and Lycoming Counties in 1892 (Birds of Eastern Pennsylvania and New Jersey). At the present time it is quite common in Green County, where Mr. Dickey has taken several sets; in Warren County, where Mr. Simpson has found several nests; in Center County,where the young have been found by the author; and in Luzerne

County, where Mr. E. W. Campbell has taken several nests. On the Pocono plateau, I have found them regularly, tho not in great numbers and have taken breeding birds; recently Mr. Leibelsperger has noted them as far south as Berks County, and Mr. Stone in Fulton County.

477. Cyanocitta cristata cristata (Linn.). Blue Jay

This beautiful marauder is one of the most generally known of all our birds, occuring thruout the state and breeding in every county. In the thickly populated section about Philadelphia, it is becoming less abundant. The Blue Jay appears to be most common in the section lying within the Alleghanian fauna and there is one of the most characteristic and abundant birds.

486a. Corvus corax principalis Ridgw. Northern Raven.

Formerly this bird bred over a large portionoof the mountainous country, but in later years it has become extinct in a great many localities. Despite continuous persecution, the Raven still breeds regularly in Center County, where the author has taken several sets of eggs. At the present time, the author knows of nesting pairs in the following counties, Wyoming, Huntingdon, Blair , and Lycoming. It undoubtedly nests also in the wilder mountain-

ous regions of Fulton, Mifflin, Clearfield, Clinton, and Sullivan Counties.

488. Corvus brachyrhynchos brachyrhynchos Brehm. Crow.

In spite of the fact that he is rightfully outlawed and practically friendless, the Crow continues to thrive and is even now as abundant as years ago. Man may exterminate the Wild Pigeon, Eskimo Curlew, and many others, but his sable majesty still perpetuates his cunning thievery as in the days of our ancestors. Everywhere thruout the state, this species is one of the most abundant breeders, nesting in great numbers in every county, even close to the large cities.

490. Corvus ossifragus Wils. Fish Crow.

The range of this small, cracked-voiced Crow is as yet rather uncertain in Pennsylvania. The extremely small eggs and hoarse voices of some of the Common Crows make it altogether probable that it is frequently confused with that species. At the present time it is known to breed definitely in Delaware, Chester, Montgomery, Philadelphia, Bucks, Lancaster, and York Counties, being apparently most common in Delaware and Philadelphia Counties, tho it seems altogether probable that it may also breed in Lebanon and

Carlisle. To the southoof Philadelphia, I have taken its nests on the Tinicum Meadows, while several pairs breed in the parks and squares in the very heart of Philadelphia. Several sets have been taken along the Brandywine Creek in Chester County, while Mr. Miller has also collected its eggs about Philadelphia. It seems to be slowly extending its range farther up the river valleys.

493. Sturnus vulgaris Linn. Sterling.

The Sterling is another example of an introduced species that has apparently come to stay. Previous to 1907, they were unknown as breeders in this state, but since 1908 especially, they have spread until they are becoming common nesting birds thru many sections of Philadelphia, Montgomery, Bucks, Delaware, and Chester Counties. It is only reasonable to believe that within the next ten years, this bird will spread over practically the entire state.

494. Dolichonyx oryzivorus (Linn.). Bobolink.

The Bobolink is a regular breeder thruout a large part of northern central and eastern Pennsylvania. In the northern tier of counties especially Erie, Warren, Crawford, Tioga, Bradford, and Susquehanna, it breeds commonly but always locally. In the larger part of Pike, Monroe, and

Wayne Counties, it is very rare but nests regularly as far south as southern Bucks County, where it has been found about Bristol and Newtown. In parts of Montgomery County, it is not rare, and I saw several breeding pairs at Amber in 1912, where Mr. Gillin has collected a set of eggs. Mr Miller has observed birds at Bridesburg as late as June 5, 1902 and June 17, 1910, and in 1907, I noted two pairs on the Tinicum meadows thruout the summer. At present, I know of several localities where the Bobolink breeds within twenty miles of Philadelphia. The fact must be borne in mind, however, that it is extremely local in Pennsylvania and does not generally nest south of the Alleghanian fauna.

495. Molothrus ater ater (Bodd.). Cowbird.

This notorious shunner of parental duties breeds regularly thruout the state, being more common in the open, farming country with small woodlots than in the more extensive mountain forests. It is apparently most abundant in the southern half of the state and least so in the northern counties.

498. Agelaius phoeniceus phoeniceus (Linn.). Red-winged Blackbird.

The Red-winged or Swamp Blackbird arrives from the south during the early part of March or frequently earlier, and from that time until the breeding season closes, in late July, is one of the most abundant and characteristic of our birds. It is essentially a bird of the open country, nesting either in extensive swamps, small bogs, damp meadows, or even clover fields that are high and dry but where the growth is luxuriant.

501. Sturnella magna magna (Linn.). Meadowlark.

This beautiful species is a very common resident thruout the state but in the northern half is much more abundant in summer. It breeds in every county but is far more common in the open, farming districts than the wilder, mountainous districts.

506. Icterus spurius (Linn.). Orchard Oriole.

The Orchard Orioleis another sepcies that seems gradually to be extending its range northward. At all times more common in the Carolinian fauna, tho breeding regularly in a large part of the Alleghanian, it has recently been found to occur as a rare summer resident in certain sections of Pike and Luzerne Counties,lying within the range of the

Canadian fauna. In southeastern Pennsylvania, especially sections of Bucks, Delaware, Montgomery, and Chester Counties, it is a very abundant bird, while it occurs regularly in the southern half of the state, nesting as far north as Center County, and rarely in sections of Erie.

507. Icterus galbula (Linn.). Baltimore Oriole.

This beautiful and well known Oriole nests more or less commonly in every county of the state, being less numerous in the Carolinian fauna and growing abundant in the Alleghanian and Canadian faunas. In the northern counties, it is everywhere an abundant bird, while even in Green County, Mr. Dickey finds it commonly. On account of its striking plumage, beautiful song, and peculiar nest it is usually noticed by everyone.

511. Quiscalus quiscula quiscula (Linn.). Purple Grackel.

Of the numerous species of birds nesting within the limits of Pennsylvania, perhaps no variety is better known than is the common "Blackbird" of the countryside. The exact status of this and the Bronzed Grackle still remains in question in the state, but the general rule that this is the form breeding east of the Alleghanies is fairly safe. In the northeastern counties, it is rather local,

and in Pike and Wayne Counties, I have taken several breeding specimens of the Bronzed variety, tho the true Purple is undoubtedly more common. In Center County, out of about fifteen breeding birds collected, four were Purple, six Bronzed, and the remaining five intermediate between the two. From the data I have been able to gather, the dividing line between the two races seems to run thro the following counties, Bedford, Blair, Center, Lycoming, and Tioga.

511b. Quiscalus quiscula aeneus Ridgw. Bronzed Grackle.

The range of this species is mainly west of the Alleghanies in Pennsylvania, tho in the central counties, the two forms of Grackle intergrade. This is apparently as common to the West as the Purple Grackle is in the East. Mr. Dickey reports it as common in Washington and Green Counties, Mr. Engle in Somerset, Mr. Simpson from Warren, Mr. Spencer from Lycoming, Mr. Simpson from Erie, and the author from Clarion, Venango , and Clearfield Counties.

517. Carpodacus purpureus purpureus (Gmel.). Purple Finch.

The Purple or Crimson Finch breeds locally in the mountainous sections of the state, lying within the Canadian fauna. According to Mr. Stone, (Birds of Eastern Pennsylvania and New Jersey), it has been reported as

nesting in Sullivan, Lycoming, Susquehanna, and Clearfield Counties, while since that time it has been found to be comparatively common in sections of Monroe and Warren Counties and undoubtedly breeds thruout the northern tier of counties.

521. Loxia curvirostra minor (Brehm.). American Crossbill.

This erratic wanderer may be looked for during the summer in many of the northern mountainous counties, having a well defined Canadian fauna. According to Mr. Stone (Birds of Eastern Pennsylvania and New Jersey), it has been found during the summer in the following counties:- Sullivan, Luzerne, Clinton, Clearfield, Cameron, and Lycoming. More recently, it has been noted in Monroe County by Messrs. Weygandt and Carter, in Pike County by R. C. Harlow, and a number of times in Warren County by R. B. Simpson.

529. Astragalinus tristis tristis (Linn.). Goldfinch.

This beautiful little species, often known as the Wild-canary, breeds commonly and in places abundantly in every county of the state. In Philadelphia County, it is rather scarce as a breeder, but nearby, in sections of Montgomery, Delaware, and Chester Counties, I have found it not

uncommon. Practically all of my friends have noted it as a frequent breeding bird, thruout the state, but especially in the mountainous counties of the Alleghanian fauna.

533. Spinus pinus pinus (Wils.). Pine Siskin.

Perhaps the most noteworthy discovery within the state of Pennsylvania during 1912 was that of the nest and eggs of this species taken in Warren County by Mr. R. B. Simpson. Previous to this discovery, the Pine Siskin had been reported to breed in Lycoming and Sullivan Counties, rarely, but no positive evidence had ever been obtained. Concerning this species, Mr. Simpson writes me as follows, "The Pine Finch is an irregular winter visitor in this region, departing by April 8. Several times I have seen small parties of them back in the mountains in summer, and several years ago in April saw a Siskin gathering nesting material. This year, the Siskins were abundant, and in early April they were still common near town wherever there were patches of evergreen in cemeteries, groves, or woodland. The first nest was found on April 14 in a White Pine, twenty-five feet up and ten feet out on a horizontal limb. This was later deserted. April 16, I found a nest just started, twenty-five feet up and three feet out on a small horizontal limb. The female did all the work, the male often accompaning her to and fro, constantly calling.

April 29, the female began setting on three eggs. April 21, a completed nest was found, twenty-five feet up and seven feet out on a Hemlock limb. April 30, the female was setting on three eggs. The fourth nest was six feet up and four feet out on a small yellow-pine in a yard. The female was sitting on three eggs and a Cowbirds on April 23. Six other nests were found in Spruces and White Pines during the last few days of April (April 23 to May 3), holding either badly incubated eggs or young, bone with more than three young and from eight to twenty-five feet above the ground, all well out on horizontal limbs. The nests were neat and pretty, all well built and warmly lined. As soon as the young were hatched, the old birds became very quiet and the males stopped singing. I had always suspected that this bird nested here sparingly, but had hardly hoped to find them as they roam like the Crossbills.

540. Pooecetes gramineus gramineus (Gmel.). Vesper Sparrow.

The Vesper Sparrow or Grass Finch is generally abundant as a breeder in all the counties of the state. About Philadelphia, it is not so common as elsewhere but thruout the greater part of the state is one of the most abundant birds. It is one of the characteristic species of the open country and uplands, nesting anywhere in the open fields, dry meadows, weedy uplands, or cultivated truck

During the early morning and evening of the breeding season the clear, ringing, finely modulated thrill of the male is one of the features of the farming country.

542a. Passerculus sandwichensis savanna (Wils.). Savannah Sparrow.

Tho a very common migrant, the Savannah Sparrow is common as a breeder in very few places in the state, thruout the Alleghanian and Canadian faunas of Pennsylvania; and aside from the northern tier of counties, it can hardly be called common anywhere. In Warren, Clinton, Wyoming, and Sullivan Counties, it is quite common, while southward it has been found in Northampton, Monroe, Center, Huntingdon, and Cambria Counties. In fact it may be looked for locally anywhere within the limits of the Alleghanian and Canadian faunas.

546. Ammodramus savannarum australis Mayn. Grasshopper Sparrow.

This peculiar little sparrow is rather irregularly distributed during the breeding season thruout the sections lying within the Carolinian and Alleghanian faunas. Recently it has been found as a rare summer resident in parts of Monroe, Pike, and Luzerne Counties lying within the Canadian

fauna and seems to be gradually pushing its way to the north. Thruout eastern Pennsylvania, it is irregularly abundant as far north as Northampton County, while in Center County as well as in Huntingdon, it is abundant. Mr. Dickey finds it common in Green County, but in the northern tier it is almost unknown, tho it accurs rarely in Erie County.

547. Passerherbulus henslowi henslowi (Aud.). Henslow's Sparrow.

In writing of this sparrow, Dr. Warren records nests taken by Dr. Detwiler in Northampton County and Professor Roddy in Perry County. Dr. Detwiler's record as is now known, was a fraud, and consequently practically all his notes must be discounted. I have been unable to get any further data on the Pery County nest, and it may breed rarely in that county. Owing to its habits, it is very easily overlooked or confused with the Grasshopper Sparrow, and the present data would seem to show that it is an extremely rare breeder and leaves Professor Roddy's nest as unique. April 24, 1904, Mr. C. J. Hunt found six pairs in a high, upland field, overgrown with grass and weeds, near Cupola, Chester County, and secured a specimen there on the 26th. E. Seymour Woodruff records one seen in Pike County near Milford, July 22, 1905. From the evidence at hand, the Henslow's Sparrow may be looked for anywhere in the

Alleghanian and Carolinian fauna but always as one of the rarest breeders.

552. Chondestes grammacus grammacus (Say). Lark Sparrow.

This handsome sparrow undoubtedly occurs as a rare summer resident in southwestern Pennsylvania, and tho at present I know of no authentic sets of eggs from the state, it is only a matter of time until the nest is discovered. Mr. S. N. Rhoads observed a single individual in Fayette County in June 1894 (Stone's Birds of Eastern Pennsylvania and New Jersey), and Mr Pitcairn has recorded it several times in the breeding season at Leetsdale, Alleghany County (Auk, Oct. 1908). It should be looked for thruout any of the southwestern counties, tho undoubtedly a very rare breeder there.

553. Zonotrichia albicollis (Gmel.). White-throated Sparrow.

Formerly this species was almost unknown as a bredding bird in Pennsylvania, while now it has been discovered to be common in at least one locality. On July 4, 1893, Mr Stewardson Brown found an individual in full song near Fobyhanna, Monroe County (Stone's Birds of Eastern Pennsylvania and New Jersey). From that time until 1898, it was unrecorded, when Mr. Witmer Stone observed a male in

full song, June 19, near Lopez, Sullivan County. During the last two weeks of July, 1904, Mr. John D. Carter discovered a small colony of these birds at Pocono Lake, Monroe County, where the birds apparently breed regularly. There were several pairs that ranged over a hillside sloping down to the eastern shore of the lake and covered with a growth of birch, huckleberry bushes, and epilobium (Cassinia 1904). June 16, 1906, Mr Carter found a nest of this species here containing four fresh eggs and a downy young bird, evidently a Cowbird. It was sunken fluch with the ground under a huckleberry bush and built of grasses, rootlets, and bark strips, lined with find grasses. The nest was discovered thru the attempt of the female to sneak off unseen. In June, 1907, I made a search for these birds at Pocono Lake and, tho I found at least five pairs of birds, was unable to locate any nests, but on June 20, 1907, Mr. W. L. Bailey found a nest there containing five eggs.

560. Spizella passerina passerina (Bech.). Chipping Sparrow.

The Chipping Sparrow or Chippy is an abundant bird generally distributed thru the state and nesting in every county, irrespective of fauna and life zones. It is essentially a bird of the open, farming country and the suburban districts, nesting usually close to the vicinity of a house, often in the vine of a porch, or a shade tree, or

ornamental shrubbery in the yard, tho quite often an orchard is chosen.

563. Spizella pusilla pusilla (Wils.). Field Sparrow.

The Field Sparrow is an abundant breeding bird within our commonwealth, where its chosen haunts occur, apparently reaching its greatest abundance in the Alleghanian and Carolinian faunas and being less common in the northern ties of counties which are featured by the Canadian fauna.

567. Junco hyemalis hyemalis (Linn.). Slate-colored Junco.

Along the main ridge of the Alleghanies and in those counties possessing a well defined Canadian fauna, the Junco breeds regularly and in some cases abundantly. Personally I have found the nests with either eggs or young of this species in the following counties, Pike, Monroe, Sullivan, and Warren. In parts of Warren County, it may really be called abundant. With the possible exception of Erie County, it breeds regularly in all of the northern tier of counties, as well as in the following, Elk, Forest, Cameron, Clearfield, Lycoming, Blair, Cambria, Center, Union, Sullivan, Wyoming, Lackawanna, and Luzerne. It is common only in those counties where the Canadian fauna is well defined, especially in portions of Sullivan, McKean, Potter,

Elk, and Warren Counties.

581. Melospiza melodia melodia (Wils.). Song Sparrow.

This familiar sweet-voiced songster is an abundant and well distributed summer resident thruout the state, remaining the whole year round in the southern counties. During the nesting season, which lasts from late April till August, the home of this bird will be found more often than that of any other species, with the possibel exception of the Robin and House Sparrow.

584. Melospiza georgiana (Lath.). Swamp Sparrow.

The Swamp Sparrow is one species that does not seem to have been properly understood bt the older collectors and writers in this state, most of them regarding it as uncommon. In the note books of several noted collectors of the early nineties, they speak of hunting fruitlessly for its nest. Nevertheless, it is a very locally distributed bird. In Green County, Mr. Dickey tells me it is very rare, and but one nest has been taken there by Mr. Jacobs. Mr. Simpson has never taken it as a breeding bird at Warren , but tells me that they breed at Erie. In Center County, it is a rare breeder as it is in Pike and Clinton Counties, while in parts of Susquehanna, Monroe, Sullivan, and Wyoming

Counties it is fairly common. It may be looked for practically anywhere in the state but is very locally distributed. Along the Delaware River, however, especially in Delaware, Philadelphia, and Bucks Counties, it is one of the most abundant species, breeding in the river marshes and there outnumbering all the other birds. It also breeds quite commonly along the Susquehanna and never seems to be an abundant bird except in the river marshes. Some idea of the abundance of this species may be given when I say that Mr. Richard F. Miller and myself have found as many as twenty-six occupied nests in one day.

587. Pipilo erythrophthalmus erythrophthalmus (Linn.). Towhee.

The Chewink is another bird that is gradually pushing its way northward as the big timber recedes. Formerly it was a rare bird in the Canadian fauna, nesting commonly in the Carolinian and reaching its greatest abundance in the Alleghanian. Now however, it breeds in every county of the state, having become quite common in the northern tier of counties. About Philadelphia, it is a scarce breeder, preferring the dry, upland country to the river valleys. In Green County, Mr. Dickey finds it common, while Mr. Simpson writes me that it is quite common at Warren in the slashings and bushy places.

593. Cardinalis cardinalis cardinalis (Linn.). Cardinal.

The Cardinal Grosbeak or Red-bird is a very common breeder in most of the southern half of Pennsylvania. Always most abundant in the Carolinian fauna, it breeds locally and sporadically in the Alleghanian but as yet seems unknown in the Canadian. The Cardinal is especially abundant in the valley of the Delaware, where it seems to be increasing, and in the Susquehanna Valley as far north as Harrisburg and locally to Northumberland. It always seems to prefer the river valleys and does not occur beyond the limits of the Carolinian fauna in the mountains as a rule, tho I have noted it as a rare breeder in Huntingdon and southern Center Counties.

595. Zamelodia ludoviciana (Linn.). Rose-breasted Grosbeak.

This beautiful Grosbeak is locally a rather common breeder in the sections of the state lying within the Alleghanian and Canadian faunas and nests sporadically even in the Carolinian area. Mr. Witmer Stone in his "Birds of Eastern Pennsylvania and New Jersey", mentions nests taken in Delaware County by Harry G. Parker and one found in Chester County in 1875 by Titus Bennett. In eastern Pennsylvania, it breeds regularly as far south as southern Bucks County and rarely in Montgomery County near Ambler. In the western counties, it nests regularly as far south as

Alleghany County. During 1910, I found this to be a very common bird in western Pennsylvania, breeding abundantly in Clarion, Franklin, and Venango Counties. Mr. Dickey has never found it in Green County.

598. Passerina cyanea (Linn.). Indigo Bunting.

This handsome little finch is an abundant summer resident, nesting in every county thruout the state and apparently occuring in the greatest numbers in the Alleghanian fauna.

604. Spiza americana (Gmel.). Dickcissel.

In an excellent article in Cassinia for 1903, Mr. S. N. Rhoads sets forth the status of this bird, once common but now extinct thru the southern half of the state, and the following information is based on the notes given in his paper. Previous to 1860, it was found very commonly in the southeastern part of the state and was reported as breeding about Philadelphia (Wilson, Audubon, and Woodhouse), in Cumberland County about Carlisle (S. F. Baird), Chester County (Barnard), Delaware County (Cassin), and Lancaster County (Libhardt). About 1880 the bird suddenly became extinct in the state, tho W. L. Collins found a few still near Frankford in 1881, and Dr. Percy Moore noted a pair in

Montgomery County, May 13, 1888. Mr. Thomas H. Jackson has a set of six eggs taken near Lancaster about 1870 by Chas. Nauman, while Mr. Thayer has a nest and eggs taken in 1874 in Montgomery County from a currant bush by D. N. McCadden. Mr. C. J. Pennock records them as nesting prior to 1875 in Chester County in an Osage Orange hedge along the roadside.

608. Piranga erythromelas Vieill. Scarlet Tanager.

In the vicinity of Philadelphia County, this brilliantly colored species is rather uncommon and locally distributed, tho breeding here as well as in practically every county of the state. Along the Susquehanna Valley, however, and in the Alleghanian fauna, it becomes one of the common birds, while in some sections of the Canadian fauna, it is one of the abundant forest birds. In the Carolinian fauna of Green County, Mr Dickey finds it abundant. Much to my surprise, I find it rarely in a large part of Huntingdon and Center Counties.

611. Progne subis subis (Linn.). Purple Martin.

This large, bluish Swallow, always conspicuous on account of its striking colors and domestic habits, is locally common thruout most of the counties lying within the Carolinian and Alleghanian faunas, seeming to occur only

rarely in the northern tier of counties and the Canadian fauna. Mr. Simpson writes me that several years ago a few pairs nested annually at Warren in the shades of the arc lamps but that none have been seen since. In Center County, it is a rare breeder, two small colonies existing to my knowledge. Farther south, however, in Franklin, Adams, Fulton, and Somerset Counties, it is quite common, while in southwestern Pennsylvania especially about Waynesburg, it is locally abundant. In the southeastern section, it is very local, but a number of colonies exist in Delaware, Montgomery, Bucks, Lancaster, and Chester Counties, the largest perhaps being at West Chester, while in Philadelphia County there are small colonies at Holmesburg and Bustleton. In the eastern section, it breeds as far north as Easton.

612. Petrochelidon lunifrons lunifrons (Say). Cliff Swallow.

In the southern counties, the Cliff Swallow is a rather rare and always extermely local breeder, apparently decreasing in numbers. Very often a colony will appear at a locality one season and disappear the next. Mr. Dickey tells me that in 1902 it was abundant at Waynesburg but that since that time, none have been noted. In southeastern Pennsylvania, it was formerly much more common, and thruout a large part of Chester, Delaware, Philadelphia, and Montgomery Counties, does not breed at all, tho colonies still

exist at Chestnut Hill and Lansdowne in 1902 (Cassinia 1902). In the Alleghanian fauna, it becomes more common, while thruout the northern tier of counties and practically everywhere in the Canadian fauna, the Cliff Swallow is one of the most abundant birds, and I have breeding records from nearly every county in those regions.

613. Hirundo erythrogaster (Bodd.). Barn Swallow.

Everywhere thruout the open country in the state and even on the borders of our larger cities this beautiful swallow breeds abundantly. Faunal distinctions seem to have no bearing upon the distribution for from the lowlands of the Delaware River to the tops of the Alleghanies the Barn Swallow may be seen flitting gracefully about the open fields and meadows.

614. Iridoprocne bicolor (Vieill.). Tree Swallow.

Dr. Warren in writing of this bird in his "Birds of Pennsylvania" speaks of this bird as breeding regularly thruout the XXXXX state. More recent investigations seem to limit it almost entirely to a few of the counties in the Canadian fauna, tho it undoubtedly nests sparingly in the Alleghanian. Mr. Stone has found it to be a rather common

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breeder in the typical Canadian fauna within Wyoming and Sullivan Counties. Mr. John D. Carter and the author have found it breeding quite commonly about the large lakes and swamps in Monroe County, while the author has also met with it in Pike and Wayne Counties. Mr Simpson has never found it in Warren County as a breeder, but it undoubtedly breeds in western Pennsylvania in Crawford County, while Professor Koch found it in Lycoming County. It undoubtedly nests in Luzerne and Wyoming as well as other of the northern tier of counties.

616.Riparia riparia (Linn.). Bank Swallow.

This is another very locally distributed species, nesting usually in the river valleys in suitable sections thruout the state but apparently not breeding in most of the central counties. In Green County, Mr. Dickey finds it commonly, while farther north I have found it breeding in Clarion and Venango Counties; while Mr. Simpson finds a few breeding along the river at Warren and has examined several large colonies in Erie County along the lake shore. In the Susquehanna Valley, it is locally an abundant bird, and Mr. Stone has recorded it as summering in Wyoming and Sullivan Counties. About Philadelphia, it is becoming scarcer, tho colonies still exist near Chester and at Swarthmore, while the birds have deserted former colonies at Holmesburg and

Beth Ayres. Farther to the north in Bucks and Northampton Counties, there are a number of banks where these swallows nest in abundance.

617. Stelgidopteryx serripennis (Aud.). Rough-winged Swallow.

The Rough-winged Swallow is another bird that is gradually pushing its way northward beyond the limits of the Carolinian fauna. There is no doubt but that this species has often been confused with the Bank Swallow, and yet to my mind, there is no reason why it should be. The nest is almost invariably distinct, while the hole is very rarely built by the birds themselves, and as a rule it is a solitary species, only occasionly nesting in small colonies. Mr. Stone speaks of not having any authentic instances of its breeding north of the Carolinian fauna in 1894. Since that time, it has increased its range until it covers practically the whole state, tho as yet it is a rare breeder in the Canadian fauna. I have taken nests of this species as far north as Stroudsburg, Monroe County, and Warren, Warren County, while in Center County it is a regular and fairly common breeder. I have also seen these birds during the breeding season in Luzerne, Wyoming, and Clarion Counties. In Southwestern Pennsylvania, Mr. Dickey calls them scarce.

619. Bombycilla cedrorum Vieill. Cedar Waxwing.

The Cedar Waxwing or Cherry-bird nests regularly thruout the state but is apparently more common in the Alleghanian and Canadian faunas. In the southwestern counties, Mr. Dickey tells me that it is common , while in the southwestern section of the state, especially about Philadelphia, it is local and usually a scarce nesting bird. In my experience I have found the Cedar-bird to be much more common in some seasons than others but have always noted it abundantly on the Pocono plateau in Monroe and Pike Counties.

622e. Lanius ludovicianus migrans Palmer. Migrant Shrike.

The Migrant Shrike or Butcher-bird nests regularly tho not very commonly in the western border of counties from Allegheny County north thru Mercer, Lawrence, Crawford, and Erie Counties. It is occasionly seen farther east during the breeding season, but as yet no nests have been discovered except in the region noted. In regard to this bird, Dr. Warren in his "Birds of Pennsylvania", gives some interesting notes on the breeding of this bird in Erie County, where it is more common than elsewhere in the state.

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624. Vireosylva olivacea (Linn.). Red-eyed Vireo.

This is the most common and generally distributed of the Vireos, nesting abundantly thruout the state and being one of the most characteristic of our woodland birds.

627. Vireosylva gilva gilva (Vieill.). Warbling Vireo.

This small vireo is rather irregularly distributed over the greater portions of the state, being apparently more common along the river valleys. In southeastern Pennsylvania, it is a scarce bird over a large portion of the country, but locally it may be fairly common. In southwestern Pennsylvania, it is a common breeding bird, nesting north to the New York line along the Alleghany River in large numbers. In Center County, the Warbling Vireo is a rather scarce nester, and is quite rare in the northeastern counties. Along the Susquehanna River Valley, it is common as far north as Bradford County.

628. Lanivireo flavifron (Vieill.). Yellow-throated Vireo.

This handsome Vireo is a scarce but regular breeding bird in the larger part of the state, nesting sparingly in practically every county. I have received reports of its breeding from all my correspondents and fellow-workers, but they all agree with my observations in calling it scarce.

629. Lanivireo solitarius solitarius (Wils.). Blue-headed Vireo.

The Blue-headed or Solitary Vireo nests regularly and commonly thruout the mountain forests of the state within the Canadian fauna. In suitable places within the northern tier of counties, it is one of the characteristic birds. Tho I have found this ~~XXXX~~ species nesting on the Pocono Plateau as far south as the Delaware Water Gap, it is apparently much more abundant in Sullivan, Wyoming, Lycoming, Elk, Potter, McKean, Clinton, Cameron, and Warren Counties and along the Alleghanies to Blair and Cambria Counties, tho I have not noted it in Center County.

631. Vireo griseus griseus (Bodd.). White-eyed Vireo.

The White-eyed Vireo is very locally distributed during the breeding season in the southern half of the state, breeding most frequently in the Carolinian fauna, rarely in the Alleghanian, and only occuring as a straggler in the Canadian . It is apparently most common along the southern tier of counties east of the main ridge of the Alleghanies, in portions of Delaware, Chester, Lancaster, York, Adams, and Franklin Counties. Mr. J. W. Jacobs took one nest at Waynesburg in 1898, but the bird is very scarce there. It breeds north thru portions of Montgomery, Bucks, Berks, Lebanon, and Dauphin Counties but always seems to be very local and uncommon.

636. Minotilta viria (Linn.). Black and White Warbler.

The Black and White Warbler breeds in practically every county of the state but is rather irregularly distributed and in many sections is decidedly rare. In southeastern Pennsylvania, it is one of the rare breeding birds, tho several nests have been found in Chester, Delaware, and Montgomery Counties. To the northward, it becomes a more common breeding bird, and in the mixed growth of the Pocono Plateau it is one of the characteristic birds. In the southwestern counties, this species is a regular breeder, a number nests having been taken near Waynesburg by Messrs. Jacobs and Dickey. About Warren in Warren County, Mr. Simpson finds it to be a rare breeder, while in sections of McKean and Potter Counties, it is a rather common as it is over a large part of Center County.

639. Helmitheros vermivorus (Gmel.). Worm-eating Warbler.

In certain sections of the Carolinian fauna in Pennsylvania, this Warbler is more abundant, perhaps, than anywhere else within its range. In sections of Chester County,especially in the Brandywine hills, it has been frequently found by Messrs. Ladd and Jackson. In Philadelphia County, it is scarce but breeds regularly on the Wissahickon Creek, while in sections of Montgomery and Delaware Counties it is a regular breeder. In the lower Susquehanna

Valley also, it is a common bird, while in the southwestern counties, numerous nests have been taken by Messrs. Jacobs and Dickey. Lately the Worm-eating Warbler appears to be extending its range to the northward, as it has been observed during the breeding season in Lehigh County and even as far as Milford, Pike County, while in Center County, it has been found by Mr. Harrower and the author.

641. Vermivora pinus (Linn.). Blue-winged Warbler.

This beautiful little warbler ia an abundant breeding bird in certain sections of southeastern Pennsylvania, occuring most abundantly in Chester, Delaware, Montgomery, and Bucks Counties and breeding locally as far north as Berks and Lehigh Counties, while in the Susquehanna Valley it has been found breeding in Lancaster, York, Cumberland, and Dauphin Counties. West of the Alleghanies, it does not seem to have been found nesting, and tho Dr. Warren speaks of its breeding in Crawford, Beaver, Lawrence, and Clarion Counties, I have been unable to get any recent records from those localities.

642. Vermivora chrysoptera (Linn.). Golden-winged Warbler.

This handsome bird is rather irregularly distributed thru widely separated stretches of country, and its

exact status in this state remains to be determined. Tho never an abundant bird, it has been found to be locally common in Green County by Messrs. Jacobs and Dickey and breeds locally north thru Beaver and Armstrong Counties. To the eastward, this species has been observed as a summer resident in portions of Cambria, Center, Union, Columbia, Pike, Monroe, and northern Northampton Counties but always being scarce and very local.

645. Vermivora rubricapilla rubricapilla (Wils.). Nashville Warbler.

The Nashville Warbler has been found breeding in very few localities in the state of Pennsylvania. Mr. Witmer Stone found one bird near Lopez, Sullivan County, in June 1899. In Pike County, it has been found breeding rarely about Milford, while farther west it has been observed during the breeding season on the Alleghanies in Cambria and Clinton Counties. Perhaps the only locality within the state where it might be called common is at Pocono Lake, Monroe County, where a number of pairs were observed during 1905, 1906, and 1907 by Messrs. Carter, Baily, and the author. The bird seems to inhabit the low second growth, slashings surrounded by woods and clearings containing hummocks of sphagnum. In such localities it was found quite commonly, even down to the edge of the lake. Here on June

18, 1907, took the first set of eggs of this species recorded from Pennsylvania. The nest was built well out in a sphagnum swamp, sunken flush with the surface in the side of a hummock of sphagnum. It was rather fairly built of leaves,moss, and grass, lined almost entirely with fine dead grass. The eggs were only two in number, the set being incomplete. Two days later, on June 20, Mr. W. L. Baily found a second nest of this bird, holding a complete set of four eggs, the nest being sunken flush with the surface of the ground.

648a Compsothlypis americana usneae Brewst. Northern Parula Warbler.

The northern form of the Parula Warbler breeds regularly thruout the majority of the counties embraced in the Canadian fauna. In Monroe, Pike, Sullivan, Center, Hundington, Clarion, and Warren Counties, I have found the Parula occuring regularly during the summer months, while other observers report it from various points along the Alleghanies and the northern tier of counties. It also occurs sparingly in the Alleghanian fauna, and Mr. Stone has found it nesting in the Carolinian fauna of the lower Susquehanna Valley, while Harry G. Parker took one nest in Delaware County (O. and O. 1886).

652. Dendroica aestiva aestiva (Gmel.). Yellow Warbler.

This beautiful, little, golden-hued Warbler is locally an abundant bird, nesting thruout the state regardless of fauna but always occuring in the greatest numbers along the river courses and along streams. This species is especially abundant on the Tinicum Meadows in Delaware County, and in a number of other localities it is one of the numerous birds.

654. Dendroica caerulescens caerulescens (Gmel.). Black-throated Blue Warbler.

The Black-throated Blue Warbler nests commonly in a number of the counties of Pennsylvania lying within the Canadian fauna and south in the Alleghanies to Cresson, Cambria County. In many of the northern counties, this is a very common bird, and I have noted it during the summer months in Monroe, Pike, Wayne, Luzerne, Sullivan, Clinton, Clarion, Venango, and Warren Counties, while in Wyoming, Tioga, Potter, Elk, Lycoming, Clearfield, and McKean and a number of other counties, it also breeds regularly. In Center and Huntingdon Counties it ia quite rare.

657. Dendroica magnolia (Wils.). Magonlia Warbler.

Along the Alleghanies from the northern tier as far south as Somerset County, the Magnolia Warbler breeds regularly. Tho apparently limited to the Canadian fauna, it has recently been observed in summer in Berks County, near Reading and may possibly breed there. In the Pocono Plateau and the northern tier of counties especially, this species is an abundant breeding bird, while in Clarion County, it is regular but not very common.

658. Dendroica cerulea (Wils.). Cerulean Warbler.

The Cerulean Warbler breeds only in a few of the southwestern counties of the state. Dr. Warren (Birds of Pennsylvania) speaks of this bird as breeding in Clinton and Somerset Counties, but nothing definite seems to have been found to substantiate these records, tho it probably does occur in Somerset. Mr. Frank M. Chapman speaks of its breeding at Williamsport, but this must be regarded as altogether accidental. In western Pennsylvania, Mr. E. C. Todd has found the Cerulean Warbler to be a regular breeding bird in the vicinity of Beaver, Beaver County, and it undoubtedly nests in the surrounding counties, while in June, 1910, I observed several of these birds evidently nesting along the Clarion River in Clarion County. Mr. Dickey tells me that it is a very rare breeder at Waynesburg,

Greene County but that he was so fortunate as to find one nest. This he took on May 24, 1905, at which date it held four eggs and one of the Cowbird.

659. Dendroica pensylvanica (Linn.). Chestnut-sided Warbler.

The Chestnut-sided Warbler is an abundant breeding bird in practically all the counties of Pennsylvania lying within the Alleghanian and Canadian faunas. Mr. Stone has found it breeding as far south as Welsh Mountain, Lancaster County, while in Berks County it is a regular breeder. Mr. Doan has found it nesting very rarely in Bucks County, while some fourteen years ago Mr. S. B. Ladd took a set of four eggs in the Carolinian fauna of Chester County near Frazier. Along the Alleghanies especially from Center County northward, it is an abundant species.

662. Dendroica fusca (Mull.). Blackburnian Warbler.

This beautiful warbler is a regular breeder along the Alleghany Mountains from the northern tier south into Maryland. In Fulton and Bedford Counties, it is common only in those counties having a well pronounced Canadian fauna. In the western counties, Mr. Simpson tells me it is one of the rarer breeders, but in some of the northern counties especially Clinton, Lycoming, Potter, Sullivan,

Pike, and Monroe, the Blackburnian Warbler is a fairly common bird.

667. Dendroica virens (Gmel.). Black-throated Green Warbler.

The Black-throated Green Warbler is a regular and in some counties a relatively abundant breeding bird along the Alleghanies. It is mainly a bird of the Canadian fauna but in some instances summers within the region usually included in the Alleghanian fauna. In the northern tier of counties, it is rather irregularly distributed, being common in some localities and almost entirely absent from others. In portions of Center, Huntingdon, and Lycoming Counties, these birds are quite common thruout the breeding season as well as in certain localities in the Pocono Plateau.

671. Dendroica vigorsi vigorsi (Aud.). Pine Warbler.

The Pine Warbler is a regular but rather uncommon breeding bird over a large section of the state but apparently is limited to the mountainous counties. It has been found in summer thruout the northern tier from the Pocono Plateau to Erie County and south along the Alleghanies to Center, Huntingdon, and Cambria Counties.

673. Dendroica discolor (Vieill.). Prairie Warbler.

In Dr. Warren's Birds of Pennsylvania he speaks of the fact that this species nests sparingly on the Barren Ridge in Chester County. Recently Mr. J. D. Carter has confirmed Dr. Warren's record and found the Prairie Warbler to be a regular summer resident in southern Chester County. This is apparently the only place within the state where it has been definitely recorded as breeding,tho it undoubtedly nests rarely at other points along the southern line. Mr. Simpson tells me that it has been reported to breed in Crawford County, but as yet the report has not been confirmed.

674. Seiurus aurocapillus (Linn.). Oven-bird.

The Oven-bird is perhaps the most generally abundant and well distributed Warbler nesting within the state. It is one of the most common and characteristic birds occuring within the state and breeds in numbers in every county.

675. Seiurus noveboracensis noveboracensis (Gmel.). Water-thrush.

The northern Water-thrush breeds every season but not in large numbers in a number of the mountainous counties whose fauna is typically well marked Canadian. Formerly a good deal of confusion seems to have existed between the

two species of the Water-thrushes. Dr. Warren records it as breeding in Bear Meadows, Center County, but recent investigations have shown all the Water-thrushes of that locality to be the Louisianian. In the northern tier of counties from Monroe to Warren, it nests regularly and south thru Sullivan, Lycoming, Clearfield, and Clinton Counties but seems always scarce as a nesting bird.

676. Seiurus motacilla (Vieill.). Louisiana Water-thrush.

Formerly this shy bird was supposed to be limited to the Carolinian fauna in this state, but recent observations have shown it to have an extended range. In southeastern Pennsylvania, it is a rare bird, tho several sets have been taken along the Wissahickon Creek in Philadelphia County, and recently breeding birds have been observed at Swarthmore, Delaware County, and West Chester, Chester County. In the lower Susquehanna Valley it is a common bird, while in the southwestern counties it is very abundant, nesting north rarely to Venango and Crawford Counties but not being found in Warren, Elk, or Forest Counties. In the central mountainous regions it is an abundant nesting bird in Huntingdon, Center, and Mifflin Counties, also north along the Alleghanies and up the Susquehanna and Delaware Valleys to Pike, Monroe, and Wayne Counties, where it summers commonly in company with the Northern Water-thrush.

677. Oporornis formosus (Wils.). Kentucky Warbler.

In certain sections of Pennsylvania, the Kentucky Warbler is one of themmost abundant of our woodland birds. It is especially common in the southeastern and southwestern counties, nesting in large numbers in Chester, Delaware, Philadelphia, Montgomery, York, and southern Bucks Counties as well as in Greene and Washington Counties as far north as Clarion. It apparently does not breed much north of the Carolinian fauna, tho its range overlaps such Alleghanian species as the Rose-breasted Grosbeak and Bobolink.

679. Oporornis philadelphia (Wils.). Mourning Warbler.

The Mourning Warbler is a regular bird and in some localities an abundant breeding bird along the higher Alleghanies lying within the Canadian fauna as far south as Cambria County. In portions of Warren, Clinton, Potter, Elk, Lycoming, and Sullivan Counties, it is a common bird, while recently I have observed several birds nesting in Pike and Monroe Counties, where they had not been recorded heretofore.

681. Geothlypis trichas trichas (Linn.). Maryland Yellow-throat.

The Maryland Yellow-throat is an abundant summer resident thruout the state, nesting in all the counties and being apparently just as common on the high spoles of the Alleghanies as in the low swampy land of the Delaware marshes.

683. Icteria virens virens (Linn.). Yellow-breasted Chat.

The Yellow-breasted Chat is an abundant inhabitant of bushy undergrowths and thickets in the counties lying within the range of the Carolinian fauna. This species is especially common in suitable localities in Chester, Delaware, Montgomery, Lancaster, Washington, and Greene Counties. Lately the Chat has been steadily extending its range to the northward until it has finally intrenched itself as a regular breeding bird in the Alleghanian and is now recorded as a rare breeder from many of the typical Canadian counties. Mr. Stone has recorded it in summer from Harvey's Lake, Luzerne County, where the author has observed it in 1910. Mr. Cope found a pair in Potter County in 1910, while the author has located breeding birds recently in Center, Monroe, Pike, and Clarion Counties. Mr. R. B. Simpson took a nest and four eggs in Warren County on June 8, 1911.

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684. Wilsonia citrina (Gmel.). Hooded Warbler.

Altho supposed to be limited to the Carolinian fauna, the Hooded Warbler has a very peculiar range in Pennsylvania. In the Carolinian fauna it is an extermely rare breeder, only one nest having been taken in Greene County and none in the southeastern section. In the Alleghanian and mixed fauna it breeds regularly along the slopes of the mountains, being very common in Huntingdon, Center and Mifflin Counties as well as in Berks County about Hamburg (Stone, Birds of Eastern Pennsylvania and New Jersey) and at Fleetwood, where several sets have been taken. In the Canadian fauna, the Hooded Warbler nests regularly in portions of Pike, Luzerne, and a number of the western counties, being specially common in suitable localities in Warren County, where Mr. Simpson has taken a number of nests.

686. Wilsonia canadensis (Linn.). Canadian Warbler.

The Canadian Warbler nests regularly and in some sections very commonly in many of the counties lying within the Canadian fauna from the northern tier south to Cambria and Blair Counties. In some portions of Pike and Monroe Counties, this is a common bird but is rather local. In portions of Sullivan, Warren, Lycoming, and Luzerne Counties, I have found the Canadian Warbler breeding, while in Center andHuntingdon Counties it is rather abundant as it is in

nearly all regions typical of the northern fauna.

687. Setophaga ruticilla (Linn.). Redstart.

This active, fiery-hued, little warbler nests over practically the whole state but is very local and is irregularly distributed. In southwestern Pennsylvania, Mr. Dickey finds it common even in the typical Carolinian fauna of Greene County, while it is a frequent breeding bird north thru the mountainous regions of Warren County. In central Pennsylvania it is scarce and absent from many sections, while in the lower Susquehanna Valley it breeds regularly. About Philadelphia the Redstart is never a common breeding bird but nests regularly along the Susquehanna River, Wissahickon, Crum, and Pennypack Creeks. In the Alleghanian fauna it becomes more abundant and nests on the Pocono Plateau and thru the northern tier of counties.

703. Mimus polyglottos polyglottos (Linn.). Mockingbird.

The Mockingbird is a very rare summer resident in the counties lying along the southern border of the state. Years ago it was recorded as being more abundant, but at present its nesting is so rare and irregular that it might almost be called accidental. In 1901, Mr. W. F. Roberts found a nest with four eggs in Solebury Township, Bucks

County (Cassinia 1901), while in 1896 Mr. W. E. Hannum observed a pair that raised two broods at Conordville, Delaware County. Mr. S. S. Dickey tells me that a nest was found about May 30, 1912, containing five eggs near Waynesburg, Greene County.

704. Dumetella carolinensis (Linn.). Catbird.

From early May till Mid-October the Catbird is an abundant bird in briery thickets and tangled underbrush thruout the state. Tho apparently a very common breeder in every county, the Catbird seems to occur in the greatest numbers in the river valleys of the Carolinian and Alleghanian faunas, being especially abundant in the Delaware and Susquehanna Valleys.

705. Toxostoma rufum (Linn.). Brown Thrasher.

The Brown Thrasher is an abundant summer resident over a large portion of the state, breeding in every county but growing less common in the Alleghanian fauna and being scarce in most of the sections where the Canadian element of the fauna is well pronounced. In many of the mountainous counties especially Warren and Sullivan, the Thrasher seems to be increasing in numbers altho still far from common.

718. Thryothorus ludovicianus ludovicianus (Lath.). Carolina Wren.

In some sections of the Carolinian fauna this large wren is an abundant breeding bird, especially along the river valleys. In parts of Chester, Delaware, Lancaster, York, Washington, and Greene Counties, the Carolina Wren appears to occur in the greatest numbers, tho it nests generally along the southern tier of counties, closely confined to the limits of the Carolinian fauna.

719. Thryomanes bewicki bewicki (Aud.). Bewick's Wren.

This long-tailed Wren is a regular but somewhat uncommon nesting bird in Greene County, where Mr. S. S. Dickey has taken a number of sets. To the east it has been reported in Bedford, Fulton, Somerset, and Huntingdon Counties, where it may be looked for as a rare breeder. Farther north it has been recorded as an infrequent summer resident in Clinton and Beaver Counties and should breed rarely in suitable localities thruout the intervening country.

721. Troglodytes aedon aedon (Vieill.). House Wren.

The House Wren breeds each year and in numbers in many localities thruout the state, apparently being more

common in the open country of the Alleghanian and Canadian faunas than along the southern border of the state. In southwestern Pennsylvania it is a rare bird, being replaced in Greene County by the Berwick's Wren and becomes more common from Clarion County northward. About Philadelphia, the House Wren is much less common than heretofore but grows more abundant to the north, where on the Pocono Plateau, it is one of the characteristic species.

722. Nannus hiemalis hiemalis (Vieill.). Winter Wren.

This minute inhabitant of the northern coniferous forests still nests regularly in those portions of the state having a well pronounced Canadian fauna, tho generally it is much less common than it used to be. It breeds most frequently in the coniferous forests of Sullivan, Wyoming, Potter, McKean, and Warren Counties. On the Pocono Plateau and in Pike County, I have found this to be a rare breeding bird, tho a few pairs nest there each year, and it still breeds in practically all of the northern tier of counties with the exception of Erie.

724. Cistothorus stellaris (Licht.). Short-billed Marsh Wren.

At the present time there seems to be but one authentic record of the breeding of this bird within the

state. On June 8, 1904, Mr. Richard F. Miller took a set of four eggs near Richmond, Philadephia County. It probably will eventually be found nesting in some of the northern counties. On May 30, 1909, Mr Foster White and the author saw several Marsh Wrens which we took to be this species in a low, swampy meadow near State College, Center County, but later search failed to reveal them. It may possibly breed in Erie County.

725. Telmatodytes palustris palustris (Wils.). Long-billed Marsh Wren.

The Marsh Wren is an abundant breeding bird in the swamps along the Delaware and Schuylkill Rivers, apparently not breeding in numbers above the tide water. Along the shore of Lake Erie, in Erie County, Mr. Simpson has also found them breeding frequently. In June, 1886, Mr. Thomas H. Jackson found a pair of these birds nesting in a swamp near West Chester, Chester County, but only rarely do they nest above the tide water.

726. Certhia familiaris americana (Bonap.). Brown Creeper.

The Brown Creeper nests regularly but rather rarely on the higher portions of the Alleghanies where the hemlock remains uncut. In spite of diligent search it has not yet

been found on the Pocono Plateau, tho such boreal species as the Northern Water Thrush, Golden-crowned Kinglet, and White-throated Sparrow nest there regularly. In Warren, Elk, and Forest Counties, Mr. Simpson finds the Creeper breeding, but in Twenty years has found but one nest. In Sullivan and Wyoming Counties, it nests more in larger in numbers,and several sets have been taken by Messrs. Otto Behr and Witmer Stone. It has also been reported to nest in Perry, Lycoming, Clinton, and McKean Counties but no eggs have been taken. In Center County, I have searched in vain for it a number of times.

727. Sitta carolinensis carolinensis Lath. White-breasted Nuthatch.

The White-breasted Nuthatch nests regularly over the whole state, tho in many of the thickley populated sections it is now rather scarce. It always seems to occur in great numbers in the more remote farming regions than elsewhere, breeding very often in the larger woodlots as well as in the wilder mountain forests.

728. Sitta canadensis Linn. Red-breasted Nuthatch.

This small,northern Nuthatch nests only in the higher portions of the Allegharies where the hemlock forests

still stand, breeding regularly but rarely in a few localities. In Warrer County, Mr. Simpson finds rarely in summer but has never found it breeding, while to the east in McKean County, it has been noted a number of times in the summer months. It probably occurs more frequently in Sullivan County as a nester than elsewhere. Here and in Wyoming County, it has been observed a number of times and one set of eggs secured.

731. Baeolophus bicolor (Linn.). Tufted Titmouse.

The Tufted Titmouse breeds each year and commonly over practically the entire southern half of the state, tho it always occurs in the greatest numbers along the water ways and river valleys. It is always more abundant in the Carolinian fauna but appears to be steadily pushing its way northward. I have noted the Tufted Tit in the breeding season as far north as Center and Clarion Counties, while in the eastern section it has been noticed in two different seasons near La Anna, Pike County.

735. Penthestes atricapillus atricapillus (Linn.). Chickadee.

The Black-capped Chickadee has a very peculiar breeding range in this state. In the eastern half of the state, it is restricted entirely to the Alleghanian and

and Canadian faunas, nesting from Berks, Lehigh, and Lebanon Counties north and south along the Alleghanies to the southern limit of the state. In western Pennsylvania, it is a common breeding bird, encroaching upon the Carolinian fauna and nesting in Alleghany and Greene Counties with such southern birds as the Red-bellied Woodpecker and Gnatcatcher.

736. Penthestes carolinensis carolinensis (Aud.). Carolina Chickadee.

The Carolina Chickadee is a very rare summer resident in the southeastern and southern portions of Pennsylvania lying within the Carolinian fauna. Dr. Warren, in his "Birds of Pennsylvania", mentions it as a very rare breeder in Chester and Lancaster Counties and records three nests taken about 1875 by Dr. W. S. Hartman near West Chester, Chester County. All these nests contained nine eggs, which is an unusually large number for this bird to lay. Later Dr. Chas. Jack found it breeding in Delaware County near Media, and in 1897 Mr. Richard F. Miller found a nest and seven eggs at Holmesburg, Philadelphia County. Mr. Dickey tells me that it does not nest in Greene County.

748. Regulus satrapa satrapa Licht. Golden-crowned Kinglet.

Tho as yet no nest has actually been taken within

the state, the Kinglet breeds regularly tho never commonly on the highest parts of the Alleghanies. In Sullivan County, Mr. Dwight met with a pair in June (Auk, 1892), and in 1899 Mr. Witmer Stone found it not uncommon about Lopez and took two young birds. Dr. Warren (Birds of Pennsylvania) records it as summering in Lycoming County, and it has also been reported from McKean County. Mr. Simpson has never found it at Warren, but in northwestern Pennsylvania the author has found it rarely in Pike and Wayne Counties, where a family brood was seen in 1904, while in the vicinity of Pocono Lake, Monroe County, several pairs have been observed during June and July of 1905, 1906, and 1907.

751. Polioptila caerulea caerulea (Linn.). Blue-gray Gnatcatcher.

The Blue-gray Gnatcatcher nests each year and in some sections abundantly in southwestern Pennsylvania. In Washington County, it is a regular breeder but occurs in the greatest numbers in Greene County, where a large number of nests have been taken by Messrs. Jacobs and Dickey. To the north it breeds frequently thru Allegheny and Beaver Counties, where Mr. W. C. Todd has found it nesting at Beaver Falls. In Dr. Warren's "Birds of Pennsylvania" he quotes Mr. H. J. Roddy in recording it as a breeding bird in southern Perry County. East of the Alleghanies, its nesting seems to be accidental.

755. Hylocichla mustelina (Gmel.). Wood Thrush.

The Wood Thrush is an abundant breeding bird over the whole southern half of the state, growing less common in the Alleghanian and Canadian faunas. In most of the northern counties it is a rare summer resident, tho Mr. Simpson records it as common from Warren. In sections of Center, Sullivan, Pike, Wayne, and Monroe Counties, the author has found the Wood Thrush to be rare and very locally distributed.

756. Hylocichla fuscescens (Steph.). Veery.

This small retiring thrush is a regular breeding bird in the damp,swampy woodlands and ravines of the northern half of the state, being apparently much more abundant in some of the western counties. From Clarion and Cambria Counties northward, I have found it to be a rare bird, but in eastern Pennsylvania it nests each year from Northampton County northward, being most common about Pocono Lake, Monroe County. There are several recorded instances of the Veery's breeding even as far south as Montgomery County, but they must be regarded as accidental.

758a. Hylocichla ustulata ustulata (Tschudi). Olive-backed Thrush.

The Olive-backed Thrush occurs as a breeder in a number of counties where the Canadian element of fauna is well marked. It was first recorded from North Mountain, Sullivan County, where Mr. Dwight found it abundant. More recently Mr. Witmer Stone found it in the same locality. It has also been found breeding in Pike County by Mr. Harrower, in Monroe County by Messrs. Carter, Baily, and Stone, in Clinton and Potter Counties by Mr. Cope, and in Warren County by Mr. Simpson. It undoubtedly occurs in other places in the northern tier of counties, where the conditions are favorable.

759b. Hylocichla guttata pallasi (Cab.). Hermit Thrush.

In the counties where the Canadian fauna is still present and in the higher Alleghanies as far south as Cambria County the Hermit Thrush is a regular breeder, being especially abundant in the northern tier where the conditions are more boreal. In Monroe and Pike Counties, it is locally a common species but not nearly so abundant as in Sullivan and Warren Counties, where the author has found it breeding in numbers.

761. Planesticus migratorius migratorius (Linn.). Robin.

The Robin is probably the best known as well as the best loved bird occuring within the state, where it nests abundantly in every county. It is especially common in the farming districts and in the suburban villages and parks.

766. Sialia sialis sialis (Linn.). Bluebird.

The Bluebird, tho still a common breeder in many localities, seems to be steadily decreasing as one of our summer birds. It still nests regularly in every county of the state but especially in the Delaware Valley, and Central Pennsylvania, and is now almost rare where years ago it was abundant. Mr. Dickey tells me that the Bluebird is still a common bird in the southwestern counties, but in Warren County, Mr. Simpson has noticed that it is growing scarce.

Passer donesticus domesticus (Linn.). English Sparrow.

This European pest has spread thruout the state till it is now abundant even in the remote mountain counties, breeding in great numbers about practically every town, village, and city and increasing despite persecution.

Hypothetical List

129. Mergus americanus (Cass.). American Merganser.

Years ago the American Merganser was recorded as breeding in the state. Nuttal records a female with a brood of young an the Susquehanna River in 1832. Later the Messrs. Baird recorded it as breeding in Perry County. Dr. Walter Van Fleet of Renovo states that it bred in Clinton County. In Dr. Warren's "Birds of Pennsylvania" he quotes Professor August Koch as follows: "The Hooded and American Mergansres are regular breeders in Luzerne County, and I have takenthe young of both before they were able to fly." It would seem that the time is past when this bird nested with us, for constant search during the past twenty years has failed to bring to light any record of its nest or young.

131. Lophodytes cucullatus (Linn.). Hooded Merganser.

Dr. Warren in his "Birds of Pennsylvania" records young birds of this species taken by Professor H. Justin Roddy in Perry County in 1888 and 1889 and mentions that they formerly nested on Sherman's Creek. Professor August Koch also took young birds in 1888 near Williamsport, Lycoming County, so it would seem that this bird bred rarely at least in former years. Specimens of the Hooded Merganser have been taken in summer in Chester and Greene Counties, but no nests

[illegible]

have ever been found in this state.

132. Anus platyrhynchos Linn. Mallard.

In former years the Mallard was reported to breed on the peninsula at Erie, Erie County, but no nests seem to have been secured. Professor August Koch also recorded it as breeding on the Loyalsock Creek in Lycoming County, but there is no positive evidence in the form of a definite record.

133. Anus rubripes Brewst. Black Duck.

Dr. J. W. Detwiler mentions the fact that he found the Black Duck breeding within the state, but in view of a number of his other remarkable records being unreliable, his evidence will not stand. Dr. Warren mentions the Black Duck as probably breeding at Athens, Bradford County, and it may nest sparingly along the northern tier of counties.

139. Nettion Carolinense (Gmel.). Green-winged Teal.

Professor August Koch recorded the Green-winged Teal as breeding rarely in Lycoming County as late as 1889. In view of the fact that no substantiating evidence has been obtained and that it is considerably south of the bird's summer range, I am skeptical of this as well as a number of

the other breeding records of the ducks.

149. Marila affinis (Eyt.). Lesser Scaup Duck.

Dr. Warren, in his "Birds of Pennsylvania", records the occurrence of a pair of these birds for two seasons in Northumberland County and reports them as probably breeding on the authouity of Dr. W. Van Fleet. Nothing to substantiate this possible breeding has ever occurred.

215. Coturnicops noeboracensis (Gmel.). Yellow Rail.

Dr Warren mentions two specimens of this rare bird taken in Delaware County in early July, 1882, and thinks it possible that they breed in that locality. In the opinion of the author, this Rail very probably breeds in Delaware County as well as along the lake marshes in Erie County, and search should be made for it in these localities.

216, Creciscus jamaicansis (Gmel.). Little Black Rail.

The Black Rail is reported to have bred in Philadelphia County many years ago, and owing to its secretive habits, it may still be found in the river marshes. Several specimens have been taken in Lebanon County in August, and it is possible that it may also breed in some of the exten-

sive marshes in that county.

221. Fulica americana Gmel. Coot.

The Coot probably nests at rare intervals within the limits if the state. Dr. Warren mentions it as probably breeding in Mercer County and recently Mr. Richard F. Miller gives a probable breeding record from Philadelphia County.

230. Gallinago delicata (Ord). Wilson's Snipe.

Dr. Warren mentions a number of instances of the occurrence of the Wilson's Snipe in summer along the northern tier of counties. Undoubtedly some of these records are those of injured birds left behind in the migrations, but I fully believe that the Wilson's Snipe will eventually be found breeding in Erie County, tho at present there is no definite breeding record.

597. Guiraca caerulea caerulea (Linn.). Blue Grosbeak.

Fromerly the Blue Grosbeak was reported to be a very rare summer resident in Cumberland County (Baird, Birds of Carlicle), and at several times in recent years, specimens have been captured in southern Lancaster and York Counties. Over twenty years ago, Dr. J. F. Kocher found a nest with

four eggs which he thought to be of this species, but as neither nest nor birds were secured, it will not stand as a definite record for Perry County.

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